APPLE FUN

EN79250

ACTIVITIES, GAMES & PUZZLES

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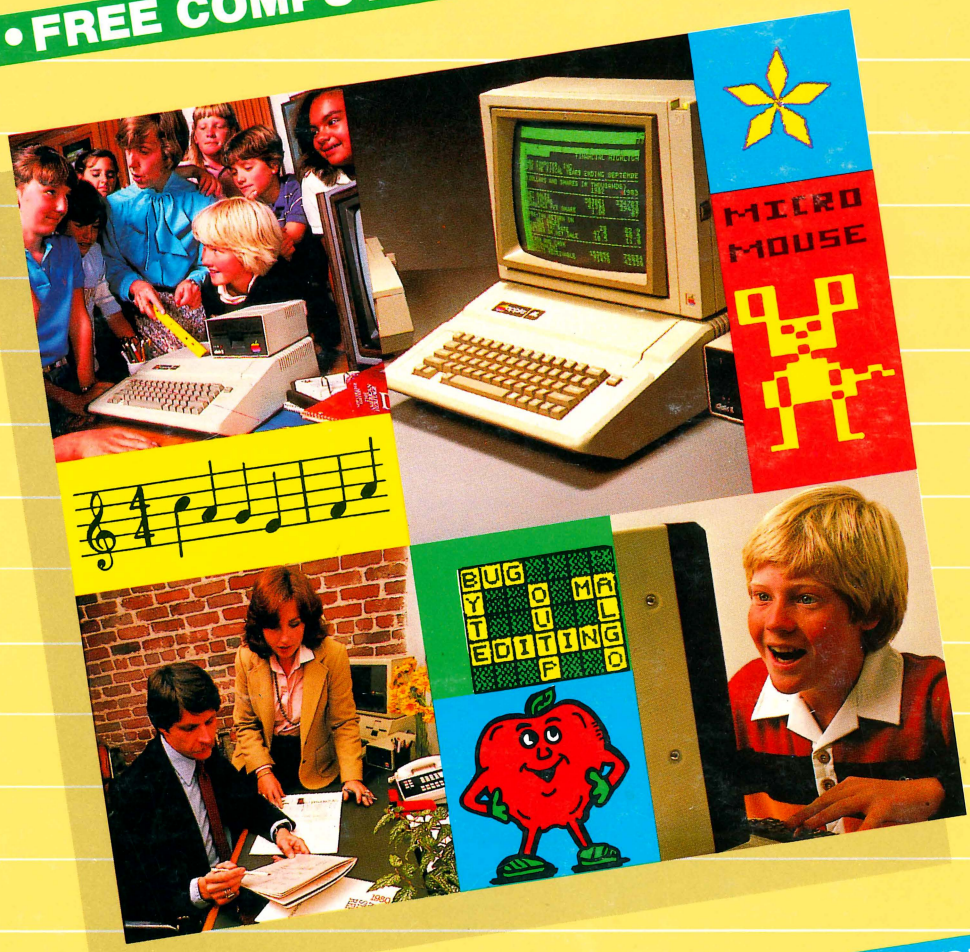

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Summary of System Commands

boot: means to start up the disk drive system.

Put your disk in the drive and close the door. Then turn on the computer and the monitor. The drive will turn on and, in a few seconds, your disk will be ready to use.

CATALOG: lets you find out the names of the programs on the disk.

When your disk is booted, type CATALOG and press RETURN. If the screen fills up, press RETURN to see if there are more programs on the disk.

DELETE: removes a program from a disk.

Type DELETE followed by the *exact* program name and press RETURN. Your program will be erased from the disk.

LIST: shows the program line numbers and commands.

If a program is in memory, type LIST and press RETURN to see the "code" the programmer wrote. If you want to see just one line, type LIST and the line number and press RETURN.

LOAD: moves a copy of a program from disk to memory.

Type LOAD followed by the *exact* program name and press RETURN. You may then LIST the program.

NEW: removes a program from the computer's memory.

Type NEW and press RETURN before you start to enter a new program. If you forget, your "old" program will be mixed with your "new" one.

RUN: makes your program "go".

If you have typed your program and want to test it, just type RUN and press RETURN.

If you want to use a program *on a disk*, type RUN followed by the *exact* program name and press RETURN. RUN puts the program into memory and starts it going.

SAVE: writes your program onto the disk for storage.

To keep your program on a disk, type SAVE followed by a program name and press RETURN. You may use any name that begins with a letter and does not include a comma.

Apple Fun

Programming with activities, games and puzzles.

Jim Haugaard
Judy Powers

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Table of Contents

Introduction 5

How to Save The Programs in This Book 6

Fun With Names
- Name Please 7
- Using a Semi-Colon 7
- Using a Comma 8
- Spaces (" ") 8
- Zig-Zag 8
- Sine Curve 9
- Cosine Curve 9
- HTAB-VTAB 10
- Random Time 10
- Name Bounce 11

Clocks and Timers
- Minute Timer 12
- Clock with Sound 12
- Set Your Own Timer 13

Special Programs
- Find the Sum 14
- Secret Password 15
- Numeral Practice 16
- Addition Tree 17
- Guess My Number 18
- Super Guess 19
- Guess the Letter 20

Coins and Dice
- Coin Flipper 21
- Super Coin Flipper 22
- Dice Roll 23
- Record Sheet 24

Animation
- What's Bugging You? 25
- Sail Away 26

High-Resolution Drawing
- Points 27
- Arrow 1 27
- Arrow 2 28
- La Pomme 28
- Mr. Elmo 29
- Maxwell 30
- The Schmoe 31
- Build a Box 32
- The Finale 33
- Grid for Duplication 34

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Word Searches
Computer Languages 35
Hardware Terms 35
Computer Words 36
Computer History 37

Word Scrambles
Computer Languages 38
Hardware 39

Word Matches
Commands and Statements 40
Commands and Statements II 41

Crossword Puzzles
Programming Test 42
Acronyms 42
Computer Crossword 43
Computer Crossword II 44

Answer Keys 45-46

Glossary 47-48

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Introduction

This book is a collection of programs and activities written for all Apple computer users. Most of the programs are fairly short and easy to understand. Many BASIC programming concepts and techniques can be picked up from the content of the programs. In an effort to make the programming easy to understand, less sophisticated methods were used. This book is not meant to be heavy with complicated computer jargon. However, there is a glossary of terms used in this book on pages 47-48. Suggestions to try are given with most of the programs.

Type each line of the program exactly (including spaces) as it is printed on the page. Then press the RETURN key. If you make a mistake before you hit the RETURN key, simply back up and type over your mistake. If you have already hit the RETURN key, then retype the entire line (including the line number). If you already know the editing features of your computer then go ahead and use them. After you have typed in your program, RUN it. If you want to SAVE your program, follow the steps on page 6 on HOW TO SAVE THE PROGRAMS IN THIS BOOK. After you have saved the program, or even if you do not, type NEW after each program so it will not cause problems with your new program.

A special section on high-resolution graphics provides you with motivating cartoon pictures on the screen. Explanations and a grid are included so that you may create your own.

Pencil and paper activities include crossword puzzles, word searches, word matches, and word scrambles. Each puzzle will provide you with knowledge about computers.

After using this book, you should have a general idea of the many functions and possibilities of the Apple computer. We encourage you to "play around" with the programs and activities. Most pages contain independent activities. You may choose to skip around and try different things without creating any problems.

Jim Haugaard
Judy Powers

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How to Save The Programs in This Book

1. Before you type any programs into the memory of the computer, place an initialized disk into drive 1. (For instructions on initializing a blank disk see your Apple Owner's Manual.)

2. Boot the disk.

3. Type NEW and press RETURN.

4. Type the program you want to save exactly as it is printed in this activity book.

5. RUN the program to see if you have any "bugs" (errors) in your program.

6. LIST your program and retype any lines that are incorrect.

7. When your program runs properly, then you are read to save it onto your initialized disk.

8. Type SAVE followed by the name of your program and press RETURN. For example, SAVE NAME BOUNCE will save the program listed on page 11 after it has been correctly entered.

9. When the red light on the disk drive goes off and the blinking cursor appears on the screen, your program is saved on the disk. Type CATALOG and press RETURN. Your program name should appear on the screen as a part of the CATALOG.

10. To RUN any of the programs that are listed in the CATALOG, type RUN followed by the name of the program.

Fun With Names

The next several pages all deal with simple programs using your name. If you don't want to see your own name in print or on the screen, then use the name of someone else. Try each program and then experiment on your own. Suggestions of things to try usually follow each program. Remember, the name of the game is not only to learn, but to have fun while doing it.

Name Please

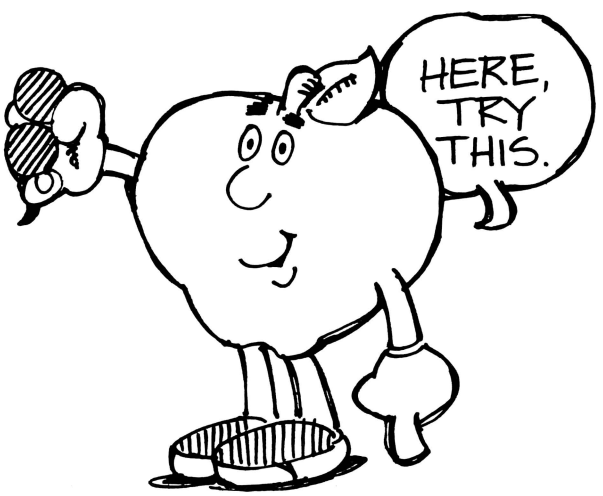
Try this first program.

```
5 REM***NAME PLEASE***
10 HOME
20 INPUT "TYPE IN YOUR FIRST NAME
   PLEASE ";H$
30 HOME
40 FOR R = 1 TO 15
50 PRINT H$
60 NEXT R
70 END
```

TRY THIS: Change line 40 to FOR R = 1 TO 50 and watch what happens.

Wow! That was fast, but not very exciting. Let's see what happens if we add a semi-colon to the PRINT statement.

Using a Semi-Colon



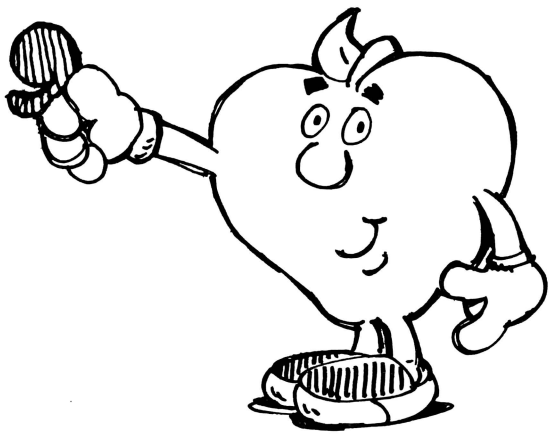

```
5 REM***USING A SEMI-COLON***
10 HOME
20 PRINT "WHAT'S YOUR FIRST NAME?"
30 INPUT N$
40 HOME
50 FOR R = 1 TO 100
60 PRINT N$;
70 NEXT R
80 END
```

That was a little better. It sure filled up the screen though. Well you wanted to see your name didn't you?

TRY THIS: Change the 100 in line 50 to a larger number. Such as 500 or even 1000.

Using a Comma

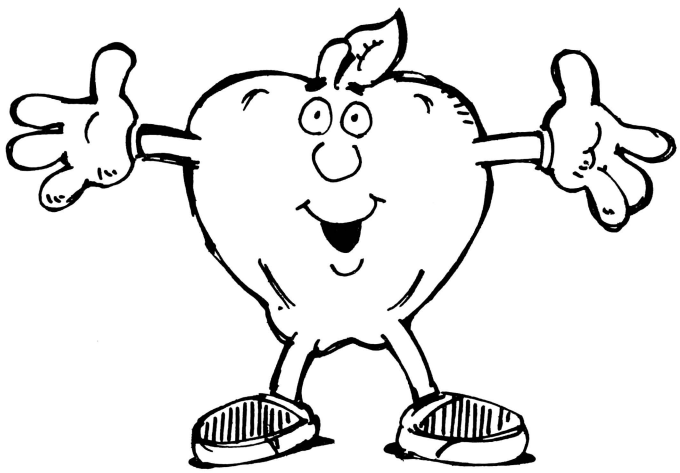
This time add a comma to the PRINT statement. Try different names, some short and some long. Do you think different things will happen?



```
5 REM***USING A COMMA***
10 HOME
20 INPUT "NAME PLEASE! ";S$
30 HOME
40 FOR K = 1 TO 75
50 PRINT S$,
60 NEXT K
70 END
```

Spaces (" ")

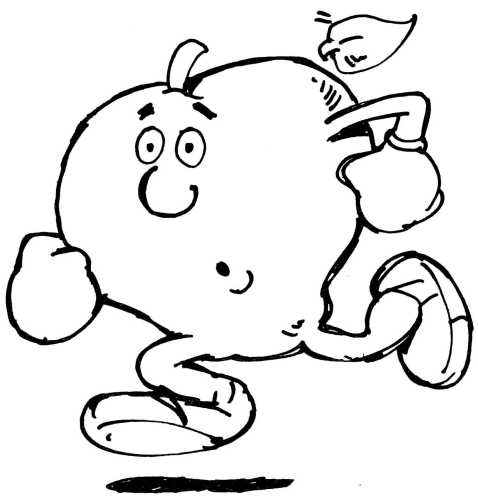
Now type in this program. This one uses spaces and should be quite pleasing to the eye. Experiment with different amounts of spaces.



```
5 REM***SPACES("    ")***
10 HOME
20 PRINT "TYPE IN YOUR NAME"
30 INPUT P$
40 HOME
50 FOR G = 1 TO 130
60 PRINT P$;"    ";
70 NEXT G
80 END
```

Zig-Zag

Notice that this next program adds some new words. Type in and then RUN this program.



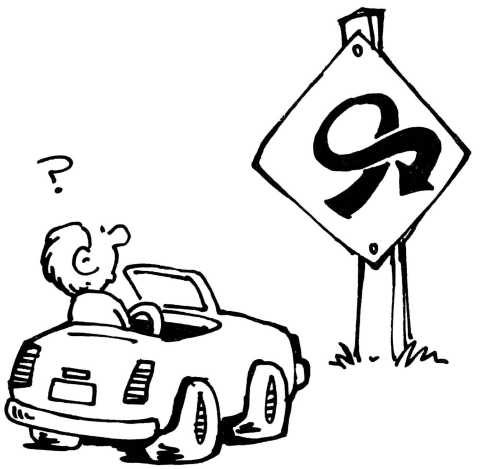
```
5 REM***ZIG-ZAG***
10 HOME
20 INPUT "FIRST NAME PLEASE ";J$
30 FOR L = 1 TO 5
40 FOR N = 1 TO 30
50 PRINT TAB(N);J$
60 NEXT N
70 FOR N = 30 TO 1 STEP -1
80 PRINT TAB(N);J$
90 NEXT N
100 NEXT L
110 END
```

TRY THIS: Change the STEP in line 70 to −2 then try some other numbers.

Sine Curve

Now that you've zigged and zagged, how about some sweeping curves? Well, here are a couple of programs that might fill the bill. If you've studied trigonometry, you'll recognize the terms sine and cosine. Even if you haven't studied "trig", type them in and see what they do.

```
5 REM***SINE CURVE***
10 HOME
20 INPUT "FIRST NAME PLEASE ";F$
30 HOME
40 FOR A = 0 TO 6.3 STEP .3
50 Y = SIN (A)
60 PRINT TAB(15 * Y + 20);F$
70 NEXT A
80 END
```



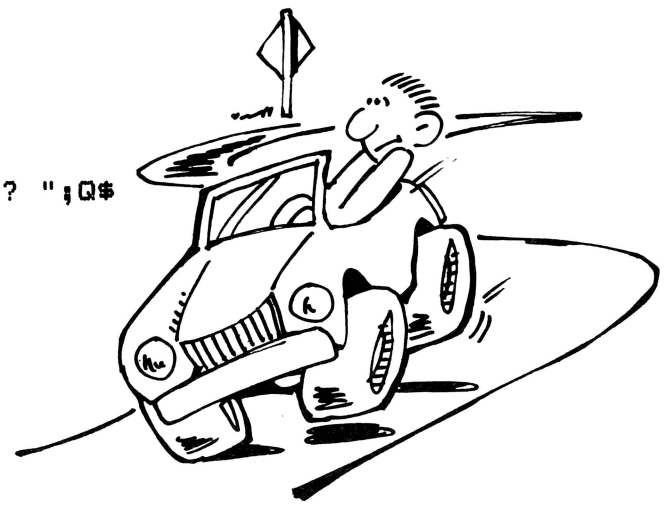
Pretty neat huh! Well wait until you see the next one. But before you enter the next one, how about some experimenting?

TRY THIS: Change the STEP in line 40 to .2 or .4.

Cosine Curve

This program uses the cosine curve. Try some changes in this one. Your authors had a lot of fun with this program. Remember to save your program if it's a good one.

```
5 REM***COSINE CURVE***
10 HOME
20 INPUT "WHAT'S YOUR FIRST NAME? ";Q$
30 HOME
40 FOR X = 1 TO 5
50 FOR A = 0 TO 6.3 STEP .2
60 Y = COS (A)
70 PRINT TAB(15 * Y + 20);Q$
80 NEXT A
90 NEXT X
100 END
```



TRY THIS: Play around with the numbers in line 70. Let us know what happens.

HTAB-VTAB

Here's a program that does strange things by using HTAB and VTAB. If you're tired of using your own name, make one up. Lots of different ones out there. If you can't think of one, you might try Montrose or Fillmore.

Regardless, just type the program in and see what happens.

```
5 REM***HTAB-VTAB***
10 HOME
20 INPUT "TYPE IN YOUR NAME ";K$
30 HOME
40 FOR X = 1 TO 30
50 FOR Y = 1 TO 24
60 HTAB 30 - X
70 VTAB Y
80 PRINT K$
90 NEXT Y
100 NEXT X
110 END
```

Wasn't that a nice one?

Random Time

This next program uses the random number function (lines 40 and 60). See if you can figure out why line 130 is in the program.

```
5 REM***RANDOM TIME***
10 HOME
20 INPUT "ENTER YOUR FIRST NAME ";F$
30 HOME
40 R = INT(36 * RND(1) + 1)
50 FOR X = 1 TO R
60 K = INT(24 * RND(1) + 1)
70 FOR Y = 1 TO K
80 HTAB X
90 VTAB Y
100 PRINT F$
110 NEXT Y
120 NEXT X
130 VTAB (22)
140 END
```

HINT: Remove line 130 and RUN the program. Then put it back in again.

Name Bounce

This is the last name program, but it's a dilly. There are a lot of different possibilities in this one. Also there is sound in this program.

Since this program is longer, be careful when you type it in. Make sure you save this one for future experimenting. Now get going for some fun.

```
5 REM***NAME BOUNCE***
10 HOME
20 INPUT "TYPE IN YOUR NAME ";N$
30 PRINT
40 INPUT "HOW MANY LETTERS IN YOUR
   NAME? ";N
45 S = -16336
50 FOR A = 1 TO 2
60 FOR L = 1 TO 36 STEP N + 1
70 R = INT(18 * RND(1) + 1)
80 FOR X = 6 TO R
90 HTAB L
100 VTAB X
110 SOUND = PEEK(S) + PEEK(S)
120 PRINT N$
130 FOR DL = 1 TO 75:NEXT DL
140 HOME
150 NEXT X
160 NEXT L
200 REM***AND BACK AGAIN***
210 HOME
220 FOR J = 36 TO 1 STEP -(N + 1)
230 FOR X = 6 TO R
240 HTAB J
250 VTAB X
260 SOUND = PEEK(S) + PEEK(S) +
    PEEK(S)
270 PRINT N$
280 FOR DL = 1 TO 50:NEXT DL
300 HOME
310 NEXT X
320 NEXT J
330 NEXT A
400 END
```

THINGS TO TRY: You might change the delays in lines 130 and 280. Also lines 110 and 260, experiment with different sounds. You can do this by the adding or subtracting of PEEK(S)'s.

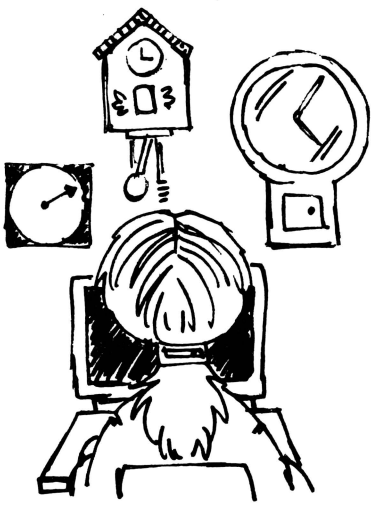
Clocks and Timers

Here are some programs for clocks and timers. The first program will give you a one minute timer. The second program is a twenty-four hour clock. The last program allows you to set a timer up to sixty seconds.

As you run the programs, you will notice that they all include sound. Check in your Apple Reference Guide to learn about changing the sound.

Minute Timer

```
10 REM***MINUTE TIMER***
20 HOME
30 FOR T = 59 TO 0 STEP -1
35 HOME
40 S = -16336
50 SOUND = PEEK(S) + PEEK(S) + PEEK(S)
60 VTAB(12):HTAB(19)
70 PRINT ":";T
75 FOR R = 1 TO 750:NEXT R
80 NEXT T
90 FOR B = 1 TO 750
100 SOUND = -(PEEK(S) + PEEK(S))
110 NEXT B
120 END
```



This next program is a clock which will run for twenty-four hours if you let it. However, this will take up some valuable computer time. Therefore if you don't want the program to run twenty-four hours you can stop it by pressing the Control key and the C key together (at the same time!).

But don't let us take away your fun. If you want it to run for twenty-four hours then go ahead.

Clock with Sound

```
10 REM***CLOCK WITH SOUND***
20 HOME
30 FOR H = 0 TO 23
40 FOR M = 0 TO 59
50 FOR S = 0 TO 59
60 N = -16336
70 SOUND = PEEK(N) + PEEK(N) + PEEK(N)
80 HOME
90 PRINT H;":";M;":";S
100 FOR K = 1 TO 750:NEXT K
110 NEXT S
120 NEXT M
130 NEXT H
140 END
```

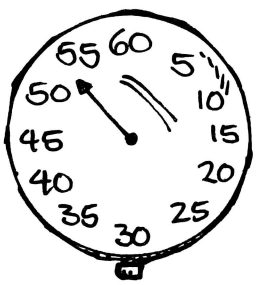
Set Your Own Timer

Now the fancy program! Well, we think it is. It's got a neat little box around the time.

We set this timer only up to sixty seconds. This program has a lot of possibilities. Type this program in, RUN it, and then play around with the time and the sound.

NOTE: Don't change line 145. 750 is the closest we can get to 1 second.

```
10 REM***SET YOUR OWN TIMER***
20 HOME
25 S = -16336
30 INPUT "SET TIMER (UP TO 60 SEC.)
   ";M
40 IF M < 1 OR M > 60 THEN GOTO 20
100 REM***THE COUNTDOWN***
110 FOR L = M TO 0 STEP -1
120 SOUND = PEEK(S) + PEEK(S) +
    PEEK(S)
125 GOSUB 300
130 VTAB(12):HTAB(19)
140 PRINT ":";L
145 FOR DL = 1 TO 750:NEXT DL
150 HOME
160 NEXT L
200 REM***BUZZER***
210 FOR B = 1 TO 100
220 SOUND = -(PEEK(S) + PEEK(S))
225 PRINT "TIME'S UP";"    ";
230 NEXT B
240 END
300 REM***CREATE THE BOX***
310 VTAB(10)
320 PRINT TAB(17)"*******"
330 PRINT TAB(17)"*      *"
340 PRINT TAB(17)"*      *"
350 PRINT TAB(17)"*      *"
360 PRINT TAB(17)"*******"
370 RETURN
```



We hope that you enjoyed this program. If you come up with anything interesting, send it along to us. We will print it in our next book and give you appropriate credit, of course.

Special Programs

Here is a puzzle in program form that should amaze you. Type it in and then RUN it. Have your friends RUN it.

Bear in mind that most people if they're "normal" will respond with 5000. Try it, you'll like it—we hope!

Find the Sum

```
5 REM***FIND THE SUM***
10 HOME
20 PRINT TAB(14)"FIND THE SUM"
30 PRINT
40 PRINT "I WILL SHOW YOU SEVEN (7)
   NUMBERS."
50 GOSUB 600
60 PRINT
70 PRINT "ADD THESE NUMBERS IN YOUR
   HEAD TO FIND  THE SUM."
80 GOSUB 600
90 PRINT
100 PRINT "WHEN YOU ARE READY, PRESS
    THE ";
105 FLASH
110 PRINT "SPACE BAR":GET A$
115 NORMAL
120 HOME
200 REM***PUZZLE BEGINS***
210 PRINT TAB(18)"1000"
220 GOSUB 600
230 PRINT TAB(20)"20"
240 GOSUB 600
250 PRINT TAB(20)"30"
260 GOSUB 600
270 PRINT TAB(18)"1000"
280 GOSUB 600
290 PRINT TAB(18)"1030"
300 GOSUB 600
310 PRINT TAB(18)"1000"
320 GOSUB 600
330 PRINT TAB(20)"20"
340 GOSUB 600
350 HOME
400 REM***ANSWER TIME***
405 NORMAL
410 VTAB(12):HTAB(10)
420 INPUT "NOW TYPE IN YOUR SUM ";S
430 FOR DL = 1 TO 750:NEXT DL
440 PRINT
450 IF S = 4100 THEN PRINT "GOOD FOR
    YOU, THAT'S CORRECT!  GAME'S
    OVER.":GOTO 550
```

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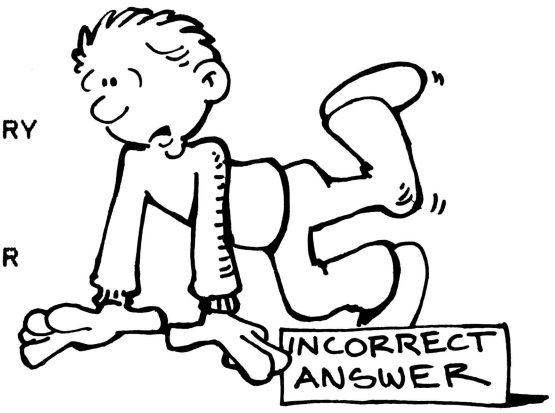
Find the Sum (con't)

```
460 PRINT TAB(10)"WRONG!"
470 PRINT
480 HTAB(10):INPUT "DO YOU WANT TO TRY
     AGAIN? (Y/N)";G$
490 IF G$ = "Y" THEN GOTO 200
500 PRINT
510 PRINT TAB(10)"TOO BAD, THE ANSWER
    IS 4100!"
550 END
600 FOR T = 1 TO 2000:NEXT T
610 RETURN
```



That was a long one wasn't it? But we think that you'll find that it was worthwhile. We bet a lot of people fall for the incorrect answer.

Secret Password

This is a secret password program. Place this program at the beginning of any other program. Unless the user knows the secret password he wouldn't be able to run the program.

You can use any secret word you wish in line 40.

```
5 REM***SECRET PASSWORD***
10 HOME
20 INPUT "ENTER THE SECRET WORD ";P$
30 PRINT
40 IF P$ = "CHAMELEON" THEN 100
50 PRINT
60 PRINT "SORRY - WRONG WORD"
70 END
100 PRINT "CORRECT"
110 FOR DL = 1 TO 1500
120 NEXT DL
200 REM***YOUR PROGRAM STARTS HERE***
```

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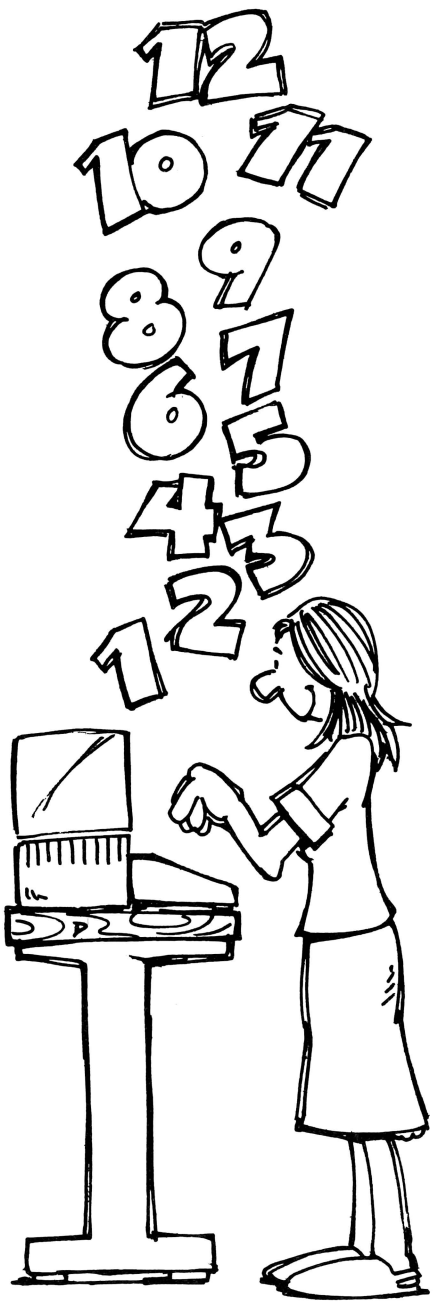
Numeral Practice

Here is an activity that will give you lots of practice recognizing a numeral. Even though this can be done with pencil and paper, it's more fun on the computer. Save this program so that you can use it with other people.

When you are typing this program into memory, be careful of the spacing in line 60.

```
10 REM***NUMERAL PRACTICE***
20 HOME
30 INPUT "PICK A NUMBER FROM 1 THROUGH
   9(4 spaces here)";N
40 IF N < 1 OR N > 9 THEN GOTO 20
50 PRINT
60 PRINT "NOW, MULTIPLY YOUR NUMBER(8
   spaces here)X3"
70 PRINT TAB(34)"--"
80 IF N = 1 OR N = 2 OR N = 3 THEN
   GOTO 500
90 HTAB(33)
100 INPUT A
110 PRINT
120 IF A = 3 * N THEN GOTO 135
130 PRINT "NOPE!  TRY AGAIN":GOTO 90
135 PRINT
140 PRINT "NOW I WILL MULTIPLY ";3 *
    N;" BY 37,037"
145 PRINT
150 PRINT "TO SEE THE ANSWER PRESS
    M":GET M$
160 HOME
170 VTAB(6):HTAB(8)
180 PRINT N * 3;" X 37,037 = ";N * 3 *
    37037
185 PRINT
190 PRINT TAB(8)"WOW!  DID YOU EXPECT
    SIX ";N;"'S?"
200 FOR DL = 1 TO 2000:NEXT DL
210 PRINT:PRINT:PRINT
220 PRINT TAB(8)"DO YOU WANT TO PLAY
    AGAIN? (Y/N)"
230 HTAB(8):INPUT Q$
240 IF Q$ = "Y" THEN GOTO 10
245 PRINT
250 PRINT TAB(8)"TOO BAD!  GOODBYE!"
260 END
500 HTAB(34):INPUT A
510 GOTO 110
```



Addition Tree

This is a very smart tree. It adds all the numbers on its branches and displays the sum by its roots. You might say that this tree really "roots" around for the answer.

```
100 REM***ADDITION TREE***
110 HOME
120 PRINT TAB(13)"ADDITION TREE"
130 PRINT
140 INPUT "PICK A WHOLE NUMBER LESS
    THAN 99986 ";N
150 IF N < 0 OR N > 99986 THEN 140
160 HOME
170 PRINT:PRINT:PRINT
180 PRINT TAB(19)N
190 PRINT
200 PRINT:PRINT TAB(16)N + 1 TAB(22)N
    + 2
210 PRINT
220 PRINT:PRINT TAB(13)N + 3 TAB(19)N
    + 4 TAB(25)N + 5
230 PRINT
240 PRINT:PRINT TAB(10)N + 6 TAB(16)N
    + 7 TAB(22)N + 8 TAB(28)N + 9
250 PRINT
260 PRINT
270 PRINT TAB(7)N + 10 TAB(13)N + 11
    TAB(19)N + 12 TAB(25)N + 13 TAB(31)
    N + 14
280 PRINT
290 PRINT TAB(19)N + 15
300 J = N
310 FOR A = 1 TO 15
320 J = J + N + A
330 NEXT A
340 PRINT:PRINT TAB(18)J
350 PRINT:FOR DL = 1 TO 1500:NEXT DL
360 INPUT "WOULD YOU LIKE TO RUN THIS
    AGAIN? (Y/N)";A$
370 IF A$ = "Y" THEN GOTO 100
380 HOME
390 VTAB(12)
400 PRINT "SORRY YOU HAVE TO LEAF US
    NOW."
410 END
```

Guess My Number

We are now going to show you two versions of the "Guess My Number Game". The first version is easier and the range is not as great. The second version uses the mathematical symbols "<" and ">". Also the range is larger.

```
10 REM***GUESS MY NUMBER***
20 HOME
30 HTAB(6):INPUT "HI!  WHAT'S YOUR NAME ";
   N$
40 X = INT(25 * RND(1) + 1)
50 PRINT
60 PRINT TAB(6)N$;" GUESS A NUMBER FROM
   1 TO 25"
70 PRINT
80 HTAB(13):INPUT G
90 IF G < 1 OR G > 25 THEN PRINT "NO,
   YOU'RE NOT IN THE RIGHT RANGE":GOTO 80
100 C = C + 1
110 PRINT
120 IF G < X THEN PRINT TAB(6)"TOO
    SMALL - GUESS AGAIN":GOTO 80
130 IF G > X THEN PRINT TAB(6)"TOO BIG
    - GUESS AGAIN":GOTO 80
140 PRINT TAB(6)"YOU GOT IT, ";N$;" -
    CONGRATULATIONS!"
145 PRINT
150 PRINT TAB(6)"IT ONLY TOOK YOU
    ";C;" TRYS!"
200 END
```

After you have played this game several times, use the recording sheet on the next page and tally your results. Play the game ten times and figure out your average. See if there is an average that you just cannot go below.

You can if you wish, make the range smaller or larger. You would have to change the following lines: 40, 60, and 90.

After you have mastered this version of the game, you are ready for the more mathematical version on the next page. GO FOR IT!

```
10 REM***SUPER GUESS***
20 HOME
30 X = INT(99 * RND(1) + 1)
40 HTAB(6):INPUT "PLEASE TYPE IN YOUR
   NAME ";N$
50 PRINT
60 FOR DL = 1 TO 1000:NEXT DL
70 HOME
80 PRINT N$;","
90 PRINT "CHOOSE A NUMBER BETWEEN
   0 AND 100"
95 PRINT
100 HTAB(13):INPUT G
110 IF G < 1 OR G > 99 THEN GOTO 80
120 C = C + 1
130 PRINT
140 IF G < X THEN PRINT TAB(13)"X >
    ";G;"   GUESS AGAIN":GOTO 100
150 IF G > X THEN PRINT TAB(13)"X <
    ";G;"   GUESS AGAIN":GOTO 100
160 FOR L = 1 TO 50
170 PRINT "       YOU GOT IT";
180 NEXT L
190 PRINT:PRINT
200 PRINT TAB(6)"AND, IT ONLY TOOK YOU
    ";C;" TRYS -"
210 PRINT TAB(6)"CONGRATULATIONS!"
220 END
```

Game #	Range	★ ★ ★ GUESSES ★ ★ ★														# of Guesses
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

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Guess the Letter

This program lets you guess an alphabet letter. If you don't get it at first then you are pointed in the direction to look. Try to get it with as few guesses as possible.

```
10 REM***GUESS THE LETTER***
20 HOME
30 PRINT "HI!  I'M YOUR FRIENDLY APPLE
   COMPUTER."
40 PRINT "I'M GOING TO PICK A LETTER
   FROM A THROUGH Z"
50 PRINT "AND I WANT YOU TO GUESS WHAT
   IT IS."
60 PRINT "WHEN YOU ARE READY, JUST
   PRESS THE "
65 FLASH
70 PRINT "SPACE BAR ";
75 NORMAL
80 PRINT "AND LET'S BEGIN.";GET S$
90 HOME
100 L = INT(26 * RND(1) + 1)
110 A$ = "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
120 L$ = MID$(A$,L,1)
130 PRINT "GUESS A LETTER FROM A
    THROUGH Z."
140 PRINT
150 INPUT G$
160 PRINT
170 IF G$ = L$ THEN 250
180 IF G$ > L$ THEN 220
190 PRINT "LOOK TOWARDS Z ";
200 PRINT "AND GUESS AGAIN."
210 GOTO 140
220 PRINT "LOOK TOWARDS A ";
230 PRINT "AND GUESS AGAIN."
240 GOTO 140
250 PRINT
260 PRINT "YOU GUESSED IT - GOOD FOR
    YOU!"
270 PRINT
280 INPUT "DO YOU WANT TO TRY
    AGAIN? (Y/N)";K$
290 IF K$ = "Y" THEN 10
300 PRINT
310 PRINT "BYE!"
320 END
```

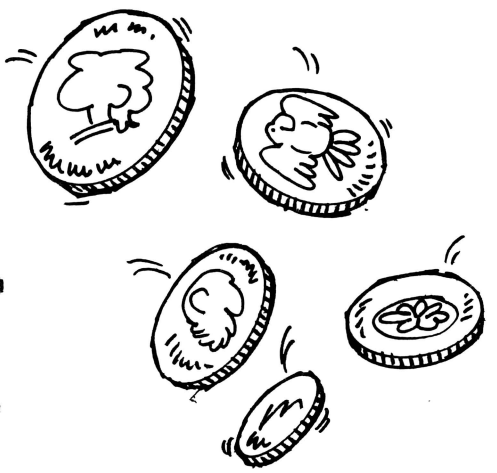
TRY THIS: Place a counter in this program so you will know how many guesses it took you to get the letter. (See program on page 19.)

Coins and Dice

Coin Flipper

The next two pages deal with the flipping of a coin. Any kind of coin. Remember that in this activity, there are only two possibilities. We will either get a heads or a tails. If the coin lands on its edge, we will wait until it falls over. We've got plenty of time.

```
10 REM***COIN FLIPPER***
20 HOME
30 FOR K = 1 TO 10
40 C = INT(2 * RND(1))
50 FOR DL = 1 TO 250:NEXT DL
60 PRINT
70 HTAB(18)
80 IF C = 0 THEN PRINT "HEADS":GOTO 100
90 PRINT "TAILS"
100 NEXT K
110 PRINT
120 PRINT TAB(10)"RECORD YOUR RESULTS."
130 END
```



Use the record sheet below to record your results. To find the percent (%), divide the number (#) of heads (or tails) by the total number of flips (in this case 10) and multiply by 100.

	# of Flips	# of Heads	# of Tails	% Heads	% Tails
1.	10				
2.	10				
3.	10				
4.	10				
5.	10				
6.	10				
7.	10				
8.	10				
9.	10				
10.	10				
TOTALS	100				

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Super Coin Flipper

With this coin flipper program, you will be able to flip the coin as many times as you want. Remember though that if you want to flip the coin ten thousand times, it will take awhile.

```
10 REM***SUPER COIN FLIPPER***
20 HOME
30 INPUT "HOW MANY TIMES SHALL WE
   FLIP? ";F
40 PRINT
50 FOR T = 1 TO F
60 C = INT(2 * RND(1))
70 IF C = 0 THEN PRINT "HEADS",:H =
   H + 1:GOTO 90
80 PRINT "TAILS",:S = S + 1
90 NEXT T:PRINT:PRINT
100 PRINT "YOU GOT ";H;" HEADS ";
110 PRINT "AND ";S;" TAILS."
120 PRINT:PRINT
130 PRINT "RUN THIS ACTIVITY SEVERAL
    TIMES. ":PRINT
140 PRINT "KEEP A RECORD OF YOUR
    SCORES."
150 END
```

	# of Flips	# of Heads	# of Tails	% Heads	% Tails
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
TOTALS					

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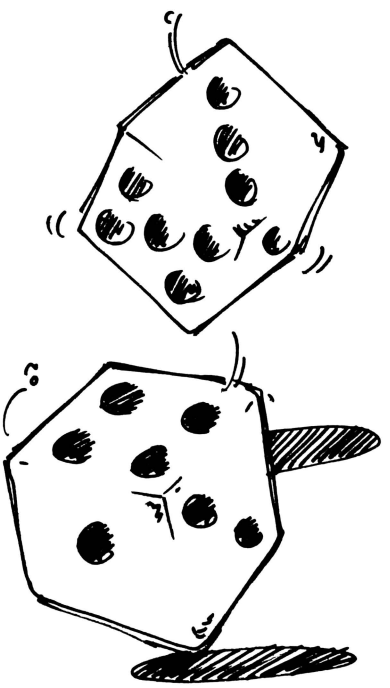
Dice Roll

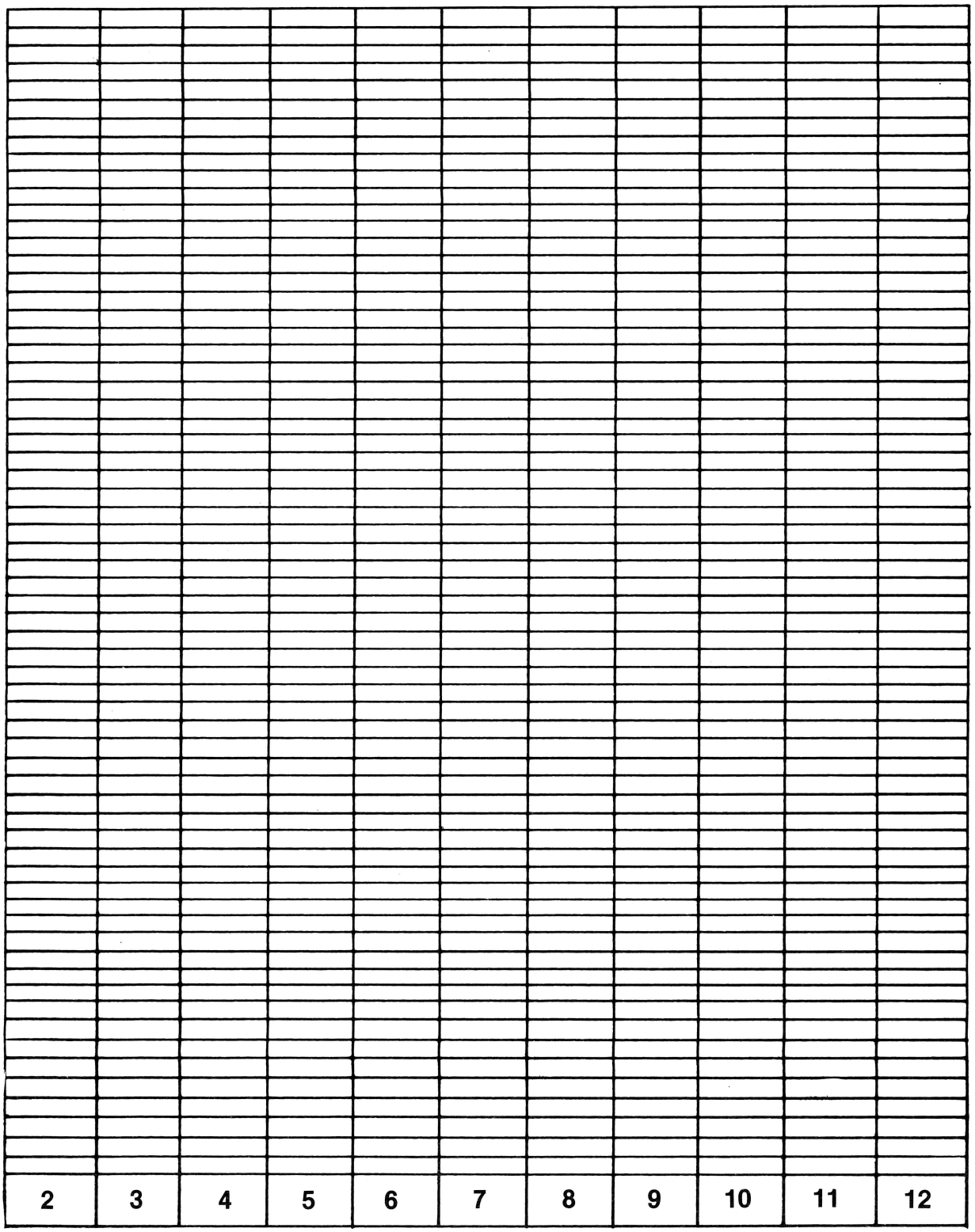
Use this program to simulate the roll of a pair of dice. After you roll the dice, record the results on the next page. Remember! You can roll the dice twenty-five thousand times, but, it will take awhile.

```
5 REM***DICE ROLL***
10 HOME
20 INPUT "HOW MANY TIMES DO YOU WANT
   TO ROLL THE DICE?  ";T
30 FOR N = 1 TO T
40 X = INT(6 * RND(1) + 1)
45 Y = INT(6 * RND(1) + 1)
50 PRINT N,X,Y
60 S = X + Y
100 IF S = 2 THEN A = A + 1
110 IF S = 3 THEN B = B + 1
120 IF S = 4 THEN C = C + 1
130 IF S = 5 THEN D = D + 1
140 IF S = 6 THEN E = E + 1
150 IF S = 7 THEN F = F + 1
160 IF S = 8 THEN G = G + 1
170 IF S = 9 THEN H = H + 1
180 IF S = 10 THEN J = J + 1
190 IF S = 11 THEN K = K + 1
195 IF S = 12 THEN L = L + 1
200 NEXT N
205 HOME
210 PRINT "YOU HAVE THE FOLLOWING
    ROLLS:"
220 PRINT:PRINT
300 PRINT TAB(14)A; TAB(20)" 2'S"
310 PRINT TAB(14)B; TAB(20)" 3'S"
320 PRINT TAB(14)C; TAB(20)" 4'S"
330 PRINT TAB(14)D; TAB(20)" 5'S"
340 PRINT TAB(14)E; TAB(20)" 6'S"
350 PRINT TAB(14)F; TAB(20)" 7'S"
360 PRINT TAB(14)G; TAB(20)" 8'S"
370 PRINT TAB(14)H; TAB(20)" 9'S"
380 PRINT TAB(14)J; TAB(20)"10'S"
390 PRINT TAB(14)K; TAB(20)"11'S"
395 PRINT TAB(14)L; TAB(20)"12'S"
400 PRINT:PRINT
410 PRINT "THE TOTAL NUMBER OF ROLLS
    IS "A + B + C + D + E + F + G +
    H + J + K + L:PRINT
420 PRINT "REMEMBER TO RECORD YOUR
    ROLLS."
430 END
```



Record Sheet

After rolling the dice on the previous page, use this sheet to graph your results. Fill in the rectangular regions starting at the bottom. If you roll the dice a large number of times, you may have to assign larger values to the rectangular regions. i,e., ■ = 5 or ■ = 10



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APPLE COM

- No food or drink at the computer
- Don't bend di
- Keep screen clean

- Protect disks from dust and heat
- Handle with car

PUTER CARE

isks

- Store disks in rigid cases

- Keep your hardware covered

disks
re

- Never remove disk when light is on

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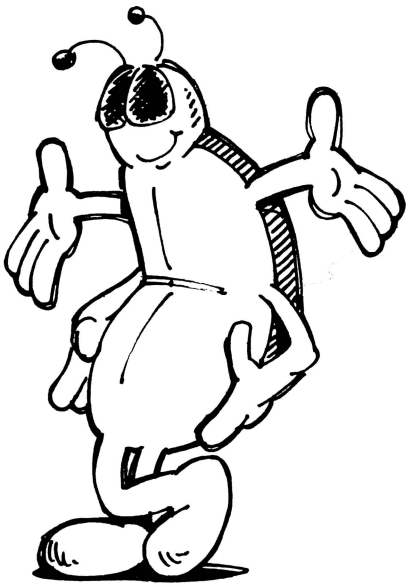
Animation

These next two programs show movement. You could say that this is the beginning of animation. There's a lot of room for experimenting in these programs.

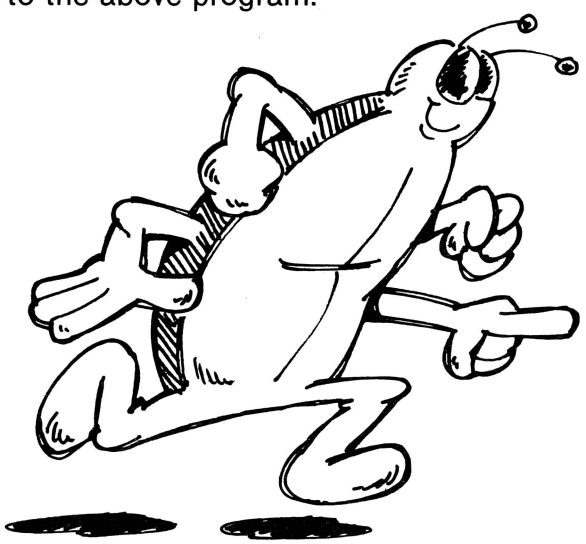
So, type them in and away you go!

What's Bugging You?



```
10 REM***WHAT'S BUGGING YOU***
20 HOME
30 FOR M = 1 TO 33 STEP 2
40 HOME
50 PRINT TAB(M);"-=ZZZZ0"
60 PRINT TAB(M);"  ))))"
70 FOR DL = 1 TO 75:NEXT DL
80 HOME
90 PRINT TAB(M);"-=ZZZZ0"
100 PRINT TAB(M);"  (((("
110 FOR DL = 1 TO 75:NEXT DL
120 NEXT M
130 END
```

We hope that didn't bug you too much! Well, even if it did, type in this next program for a change of direction. Do not type NEW. You are adding to the above program.



```
200 REM***NOW BACK AGAIN***
210 FOR R = 33 TO 1 STEP -2
220 HOME
230 PRINT TAB(R);"0ZZZZ=-"
240 PRINT TAB(R);" (((("
250 FOR DL = 1 TO 75:NEXT DL
260 HOME
270 PRINT TAB(R);"0ZZZZ=-"
280 PRINT TAB(R);" ))))"
290 FOR DL = 1 TO 75:NEXT DL
300 NEXT R
350 END
```

Now here's where the fun comes in. Let's tie the two programs together and make our bug go back and forth. Just follow these easy steps:

1. Eliminate line 130 by typing 130 and pressing the return key

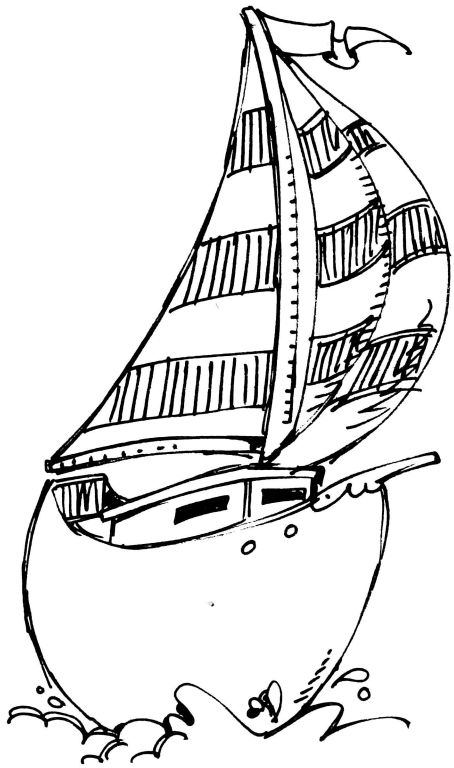
2. Add the following lines:

   25 FOR B = 1 TO 3
   305 NEXT B

Sail Away

Now it's time to sail away. So put on your boat shoes and get on board.

```
10 REM***SAIL AWAY***
20 HOME
30 FOR M = 1 TO 33
40 HOME
45 VTAB(12)
50 PRINT TAB(M);"     *  "
60 PRINT TAB(M);"  * *
70 PRINT TAB(M);"* * *  "
80 PRINT TAB(M);"*******"
90 PRINT TAB(M);" ****  "
100 FOR DL = 1 TO 50:NEXT DL
110 NEXT M
200 REM***AND BACK AGAIN***
210 FOR B = 33 TO 1 STEP -1
220 HOME
230 VTAB(12)
240 PRINT TAB(B);" *      "
250 PRINT TAB(B);" * *    "
260 PRINT TAB(B);" * * * "
270 PRINT TAB(B);"*******"
280 PRINT TAB(B);"  **** "
290 FOR DL = 1 TO 25:NEXT DL
295 NEXT B
400 END
```



Hope you're not sea sick! Well the water was pretty calm.

TRY THIS: By changing lines 100 and 290 you can make the boat go faster or slower.

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High-Resolution Drawing

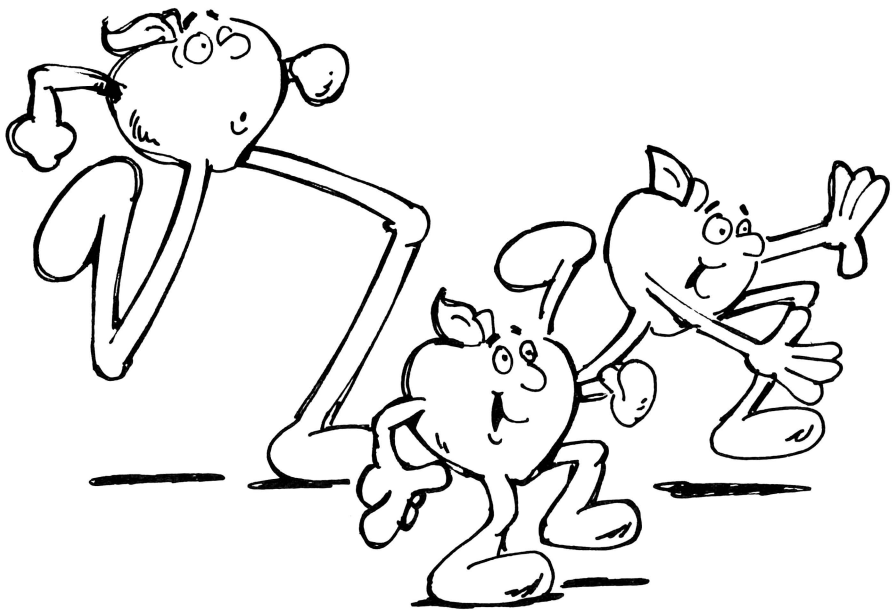
You can draw with much more detail with high-resolution graphics than with low-resolution graphics. The high-resolution graphics screen is 280 by 160 plotting points. (0 to 279 on the horizontal and 0 to 159 on the vertical.) See page 34.

To activate the high-resolution graphics screen, type: HGR. You also need to type in: HCOLOR = 0,1,2,3,4,5,6, or 7. With a mono-chrome monitor, use either 3 or 7. For your own curiosity, try the other numbers and see what happens.

Here is a simple program that will plot several points.

Points

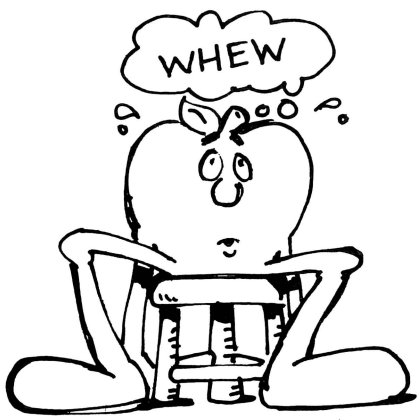
```
10 REM***POINTS***
20 HGR
30 HCOLOR = 3
40 HPLOT 35,70
50 HPLOT 175,40
60 HPLOT 165,10
70 HPLOT 230,45
80 HPLOT 195,110
90 HPLOT 185,80
100 HPLOT 50,110
110 END
```



Now let's type in and RUN a program that will connect the dots. First clear the screen by typing TEXT and press RETURN. Then type HOME and press RETURN.

Arrow 1

```
10 REM***ARROW 1***
20 HGR
30 HCOLOR = 3
40 HPLOT 35,70 TO 175,40 TO 165,10
   TO 230,45
50 HPLOT TO 195,110 TO 185,80 TO
   50,110 TO 35,70
60 END
```



By using the technique in the above program, you can plot and connect your own sets of points. Use the grid on page 34 to create your own pictures. You are welcome to share these with us as well.

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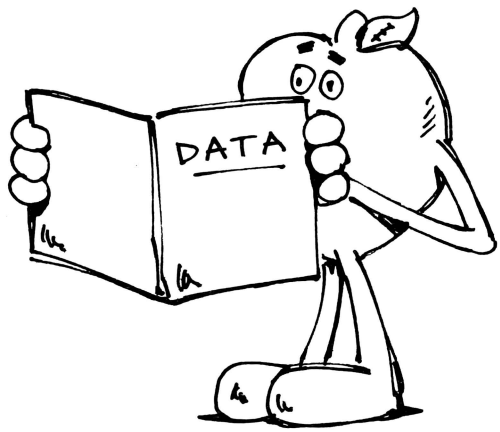
Arrow 2

Clear the screen again and then try this variation using READ-DATA and "a delay".

```
10 REM***ARROW 2***
20 HGR
30 HCOLOR = 3
40 READ X,Y,A,B
50 IF X = 999 THEN 200
60 HPLOT X,Y TO A,B
70 FOR DL = 1 TO 500:NEXT DL
80 GOTO 40
90 DATA 35,70,175,40
100 DATA 175,40,165,10
110 DATA 165,10,230,45
120 DATA 230,45,195,110
130 DATA 195,110,185,80
140 DATA 185,80,50,110
150 DATA 50,110,35,70
160 DATA 999,0,0,0
200 END
```



La Pomme

This last version takes more typing, that's why the next programs, longer, will use the shorter version. Let's start with a familar picture, one that we have come to know so well. Careful typing now!

```
10 REM***LA POMME***
20 REM***SECTION 1***
30 HGR
40 HCOLOR = 3
50 HPLOT 110,140 TO 130,135 TO 140,135
   TO 155,140
60 HPLOT TO 180,120 TO 190,105 TO
   190,100 TO 180,90
70 HPLOT TO 175,70 TO 185,55 TO 190,50
   TO 180,40
80 HPLOT TO 170,35 TO 145,45 TO 135,45
   TO 120,35
90 HPLOT TO 110,35 TO 95,45 TO 85,55
   TO 80,70
95 HPLOT TO 80,90 TO 85,105 TO 90,120
   TO 110,140
100 REM***SECTION 2***
110 HPLOT 140,40 TO 140,25 TO 145,15
    TO 155,10
120 HPLOT TO 170,5 TO 165,20 TO 155,35
    TO 140,40
200 REM***SECTION 3***
210 HPLOT 85,60 TO 180,60
220 HPLOT 80,75 TO 175,75
230 HPLOT 80,90 TO 180,90
240 HPLOT 85,105 TO 190,105
250 HPLOT 90,120 TO 180,120
300 END
```

Mr. Elmo

Here's one that we had a lot of fun doing. We hope you'll like it too! Feel free to add some other things to this picture.

And, remember to SAVE your program to show others your work of "art".

```
5 REM***MR. ELMO***
10 REM***SECTION 1***
20 HGR
30 HCOLOR = 3
40 HPLOT 95,155 TO 100,140 TO 65,115
   TO 50,85
50 HPLOT TO 50,50 TO 65,30 TO 105,10
   TO 145,5
60 HPLOT TO 225,5 TO 185,25 TO 150,30
   TO 125,40
70 HPLOT TO 115,50 TO 130,95 TO 100,95
   TO 100,55
80 HPLOT TO 95,40 TO 75,40 TO 60,60
   TO 60,75
90 HPLOT TO 70,100 TO 85,110 TO  95,105
   TO 100,95
100 REM***SECTION 2***
110 HPLOT 150,30 TO 160,40 TO 175,55
    TO 190,50
120 HPLOT TO 200,50 TO 210,60 TO 210,70
    TO 200,85
130 HPLOT TO 190,85 TO 175,75 TO 180,100
140 HPLOT TO 165,120 TO 150,130 TO 145,155
200 REM***SECTION 3***
210 HPLOT 160,40 TO 145,55 TO 145,65
    TO 150,70
220 HPLOT TO 160,65 TO 175,55 TO 160,55
    TO 160,65
300 REM***SECTION 4***
310 HPLOT 180,100 TO 170,100 TO 155,95
    TO 150,85
400 REM***SECTION 5***
410 HPLOT 90,60 TO 80,55 TO 70,70
420 HPLOT TO 70,85 TO 80,95 TO 90,85
500 END
```

For an interesting variation to the above work of art, add the following lines:

```
95 GOSUB 600
150 GOSUB 600
230 GOSUB 600
320 GOSUB 600
600 FOR DL = 1 TO 750:NEXT DL
610 RETURN
```

This is Maxwell, a delightful character to adore.
Make some copies of the grid on Page 34.
Then with your newly gained expertise,
Create a playmate that is sure to please.

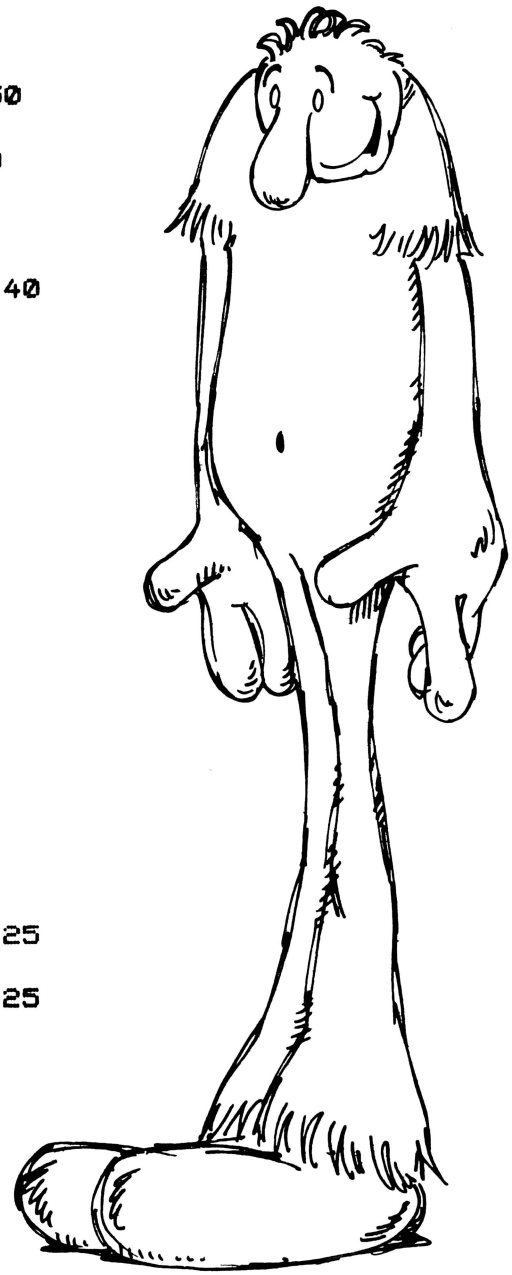
```
10 REM***MAXWELL***
20 HGR
30 HCOLOR = 3
40 HPLOT 75,5 TO 55,35 TO 65,55 TO
   65,80
50 HPLOT TO 55,100 TO 65,130 TO 90,105
   TO 105,125
60 HPLOT TO 125,140 TO 145,150 TO
   175,145 TO 210,140
70 HPLOT TO 240,120 TO 260,125 TO
   260,120 TO 240,95
80 HPLOT TO 225,80 TO 205,35 TO 190,25
   TO 175,15
90 HPLOT TO 150,20 TO 115,30 TO 90,60
   TO 75,5
100 HPLOT 175,145 TO 160,115 TO 155,80
    TO 170,105
110 HPLOT TO 195,115 TO 210,120 TO
    240,120
200 HPLOT 170,70 TO 175,55 TO 185,55
    TO 190,70
210 HPLOT TO 185,85 TO 175,85 TO
    170,70
300 HPLOT 200,55 TO 210,55 TO 215,70
    TO 210,85
310 HPLOT TO 200,85 TO 195,70 TO
    200,55
400 HPLOT 105,125 TO 90,155 TO 115,150 TO
    125,140
500 HPLOT 150,20 TO 140,5 TO 185,5 TO
    190,25
600 HPLOT 180,75 TO 185,75 TO 185,80
    TO 180,80 TO 180,75
700 HPLOT 205,75 TO 210,75 TO 210,80
    TO 205,80 TO 205,75
800 END
```

We certainly hope you liked Maxwell. He's a very happy fellow. On the next page is a longer program. Be careful when typing it in.

The authors make no claim to him being a friend of theirs. Do you know him? You'll surely know after RUNning the program.

The Schmoe

```
5 REM***THE SCHMOE***
10 HGR:HCOLOR = 3
20 REM***SECTION 1***
30 HPLOT 65,80 TO 55,85 TO 50,85
   TO 40,70
40 HPLOT TO 40,55 TO 50,40 TO 55,40
   TO 65,15
50 HPLOT TO 115,5 TO 170,5 TO 220,15
   TO 225,35
60 HPLOT TO 230,35 TO 235,50 TO 235,75
   TO 230,85
70 HPLOT TO 225,85 TO 215,80 TO 225,100
   TO 225,115
80 HPLOT TO 205,135 TO 185,140 TO 165,150
   TO 145,155
90 HPLOT TO 135,155 TO 115,150 TO 90,140
   TO 70,130
100 HPLOT TO 55,115 TO 55,100 TO 65,80
200 REM***SECTION 2***
210 HPLOT 55,40 TO 65,40 TO 70,55 TO 80,40
220 HPLOT TO 90,55 TO 105,40 TO 115,15
    TO 125,25
230 HPLOT TO 135,20 TO 145,25 TO 150,15
    TO 160,25
240 HPLOT TO 175,20 TO 180,25 TO 190,15
    TO 200,50
250 HPLOT TO 210,50 TO 215,35 TO 225,35
300 REM***SECTION 3***
310 HPLOT 125,25 TO 115,35 TO 115,40
    TO 125,50
320 HPLOT TO 135,35 TO 135,30 TO 130,30
    TO 130,35
330 HPLOT TO 150,35 TO 150,30 TO 145,30
    TO 145,35
340 HPLOT TO 160,50 TO 165,40 TO 165,35
    TO 160,25
400 REM***SECTION 4***
410 HPLOT 125,50 TO 110,65 TO 110,80
    TO 115,85
420 HPLOT TO 105,100 TO 100,125 TO 115,125
    TO 130,130
430 HPLOT TO 150,130 TO 165,125 TO 180,125
    TO 175,100
440 HPLOT TO 165,85 TO 170,80 TO 170,65
    TO 160,50
500 REM***SECTION 5***
510 HPLOT 115,85 TO 120,80 TO 130,80
    TO 135,85
520 HPLOT TO 145,85 TO 150,80 TO 160,80
    TO 165,85
600 END
```



Isn't he a "beaut"? He may not win any beauty contests, but he is friendly. You've had a lot of practice by now, so why don't you make up a nice friend for him. I'm sure he would really appreciate that.

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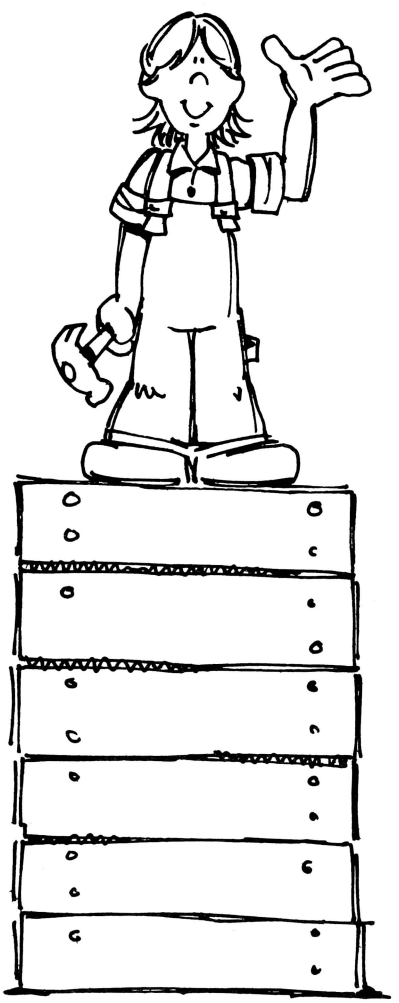
Build a Box

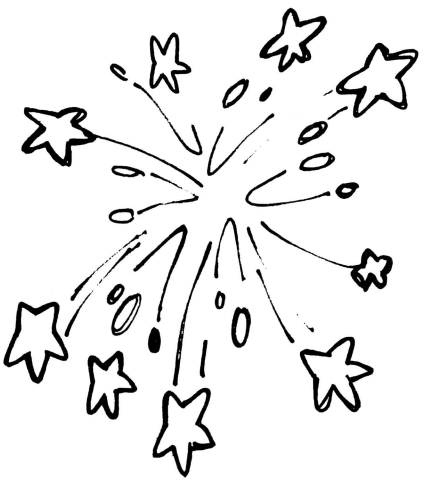
This program uses the computer to build a box. Notice the use of GOSUB in the program. This helps to slow the action down. By changing line 400, you can either slow it down or speed it up. Also notice how we add some sound to the program.

```
10 REM ***BUILD A BOX
20 HGR
30 HCOLOR = 3
40 HPLOT 40,65 TO 40,125
50 GOSUB 300
60 HPLOT 190,65 TO 190,125
70 GOSUB 300
80 HPLOT 265,20 TO 265,80
90 GOSUB 300
100 HPLOT 190,65 TO 265,20
110 GOSUB 300
120 HPLOT 40,65 TO 115,20
130 GOSUB 300
140 HPLOT 265,80 TO 190,125
150 GOSUB 300
160 HPLOT 40,65 TO 190,65
170 GOSUB 300
180 HPLOT 115,20 TO 265,20
190 GOSUB 300
200 HPLOT 40,125 TO 190,125
210 GOSUB 300
220 HPLOT 85,85 TO 95,85 TO 100,90
    TO 95,95
230 HPLOT TO 100,100 TO 95,105 TO
    85,105 TO 85,85
240 S = -16336
250 SOUND = PEEK(S) + PEEK(S) +
    PEEK(S)
260 GOSUB 300
270 HPLOT 105,85 TO 120,85 TO 120,105
    TO 105,105 TO 105,85
280 SOUND = PEEK(S) + PEEK(S) +
    PEEK(S)
290 GOSUB 300
300 HPLOT 125,105 TO 140,85
310 HPLOT 125,85 TO 140,105
320 SOUND = PEEK(S) + PEEK(S) +
    PEEK(S)
330 END
400 FOR DL = 1 TO 750
410 NEXT DL
420 RETURN
```



And now, what you've all been waiting for, the conclusion of this exciting excursion through the wonderful world of "art". If you're ready, then type in and RUN "THE FINALE".

```
10 HGR:HCOLOR = 3
20 HPLOT 65,20 TO 65,40
30 HPLOT 85,20 TO 85,40
40 HPLOT 100,20 TO 100,40
50 HPLOT 110,20 TO 110,40
60 HPLOT 125,20 TO 125,40
70 HPLOT 145,20 TO 145,40
80 HPLOT 165,20 TO 165,30
90 HPLOT 180,30 TO 180,40
95 GOSUB 1000
100 HPLOT 110,55 TO 110,75
110 HPLOT 125,55 TO 125,75
120 HPLOT 135,55 TO 135,75
130 HPLOT 160,55 TO 160,75
140 GOSUB 1000
200 HPLOT 135,90 TO 135,110
210 HPLOT 160,90 TO 160,110
220 HPLOT 175,90 TO 175,110
230 HPLOT 185,90 TO 185,110
240 HPLOT 210,90 TO 210,110
250 HPLOT 235,90 TO 235,100
260 HPLOT 250,100 TO 250,110
270 HPLOT 265,90 TO 265,105
280 GOSUB 1000
300 HPLOT 55,20 TO 75,20
310 HPLOT 85,30 TO 100,30
320 HPLOT 110,30 TO 125,30
330 HPLOT 110,20 TO 125,20
340 HPLOT 135,20 TO 155,20
350 HPLOT 165,20 TO 180,20
360 HPLOT 165,30 TO 180,30
370 HPLOT 165,40 TO 180,40
380 GOSUB 1000
400 HPLOT 110,55 TO 125,55
410 HPLOT 110,65 TO 125,65
420 HPLOT 135,75 TO 150,75
430 HPLOT 160,75 TO 175,75
440 GOSUB 1000
500 HPLOT 135,90 TO 150,90
505 HPLOT 135,100 TO 145,100
510 HPLOT 160,90 TO 175,90
515 HPLOT 160,110 TO 175,110
520 HPLOT 185,110 TO 200,110
525 HPLOT 225,90 TO 210,100 TO 225,110
530 HPLOT 235,90 TO 250,90
535 HPLOT 235,100 TO 250,100
540 HPLOT 235,110 TO 250,110
550 GOSUB 1000
600 SOUND = PEEK(-16336)
610 HPLOT 160,20 TO 158,15 TO 162,15
    TO 160,20:HPLOT 265,110
700 END
1000 FOR DL = 1 TO 750:NEXT DL
1010 RETURN
```



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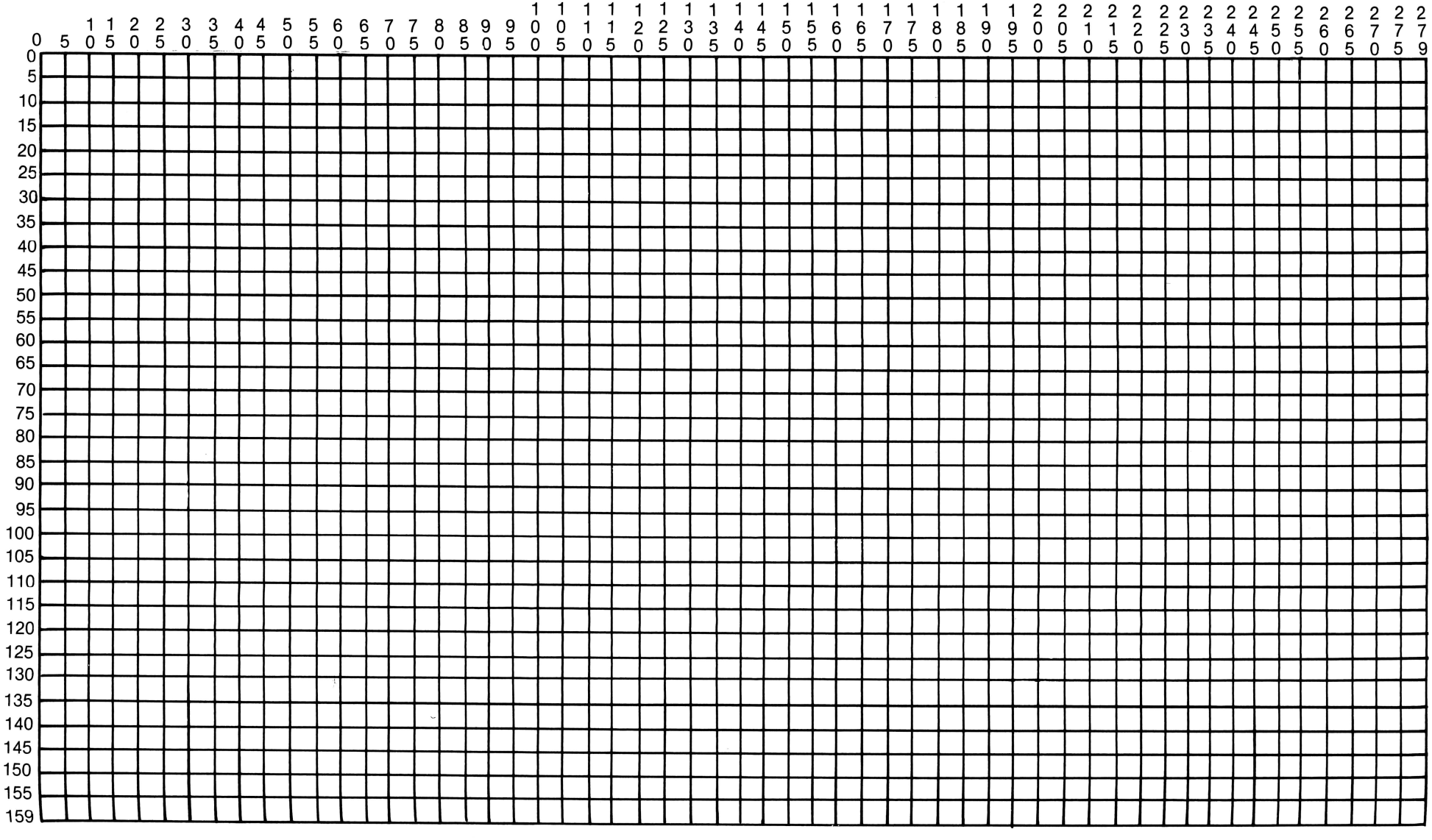
High-Resolution Worksheet

The high-resolution graphics screen is 280 × 160 plotting points. (0 to 279 on the horizontal and 0 to 159 on the vertical.)

Use this worksheet to plot your own pictures or designs. We would suggest that you tear this page out of the book and duplicate several copies.



Word Searches

Find the ten different computer languages in this puzzle. The words are either vertical or horizontal.

★ ★ **COMPUTER LANGUAGES** ★ ★

I C O B O L K F W A F D
P Q S B T O S L I S P P
D P Z H F G K W H C O S
N I M R L O X Q C D A B
V L R C P O D O O B X B
F O R T R A N U L A D A
B T K X E S X P U S O X
E D P A S C A L D I Q M
Y B V L H O G W N C Q V
E C P G Y R V H C V L O
I G F O R T H U O G L M
A F G L O W E K G X K H

WORD LIST

ALGOL
COBOL
FORTRAN
LOGO
PILOT
PASCAL
BASIC
LISP
FORTH
ADA

There are ten hardware terms in this puzzle. The words are vertical, horizontal, diagnonal or backwards.

★ ★ **HARDWARE TERMS** ★ ★

N B C E J I F R H A P A
C S H T Z O E M O U S E
G X I R M T Y P I P R U
L F P P U O P S Q E Z E
Z S A P K T N K T G I T
G F M U P I T I H I W T
M O I H T A I A T Q C E
C O I M S R D Y P O Q K
C E D R P K B D S R R S
W T U E U O L D L R C I
U I H E M Z I I A E Y D
V M D K E Y B O A R D U

WORD LIST

COMPUTER
MOUSE
DISKETTE
CHIP
PRINTER
KEYBOARD
MONITOR
PADDLE
MODEM
JOYSTICK

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Computer Words

There are twenty-five computer words in the puzzle below. They are either horizontal, vertical, diagonal or backwards. See how many you can find.

To make it harder, cover up the word list.

B G S R V A R I A B L E A R S N A E F X
L I T Q B S L M Z X S K X T C G Q V A U
S I Y A Y D A Q S A N Q W O D H A U S K
P B K L M G X R Y S C O W L L N M E Q D
R U Z G N Z S C R M P Z B E M L R V L S
O F X O D O L H S A R S S E R D D A S O
M F N R Y I Z B R Q Y A T Y V T M T C F
P E E I R O A E A D N D F T Q L Y Y R T
T R T T S D B W N A T X W I C H I P O W
U G W H E D I W D T M Q L B L J J Y L A
M M O M G I F J O A A V T P B E W U L R
Z A R S I G A W M E B R U N Y M F V J E
T S K O N I V L S T O P W Y I O L H L N
I E X U N T H H Z B J X N Y R A N I B S
M A X P M A M G A P K K I T Y R H P O C
V T F T V L J M O S U B J R W T J M O S
M A C R O N Y M K F L I B P T E L O T W
V S I J W X T U D M P T H O J A V Z E X
U Q N H R O R R E M A Q D X U E M E X E
D R V P G D H A R D W A R E X S Q Z C T

LIST OF WORDS

ABORT
ALGORITHM
BIT
CHIP
ERROR
SOFTWARE
PROMPT
SCROLL
VARIABLE
ACRONYM
ARRAY
BOOT
DATA
FILE
MATRIX
QWERTY
TEXT
ADDRESS
BINARY
BUFFER
DIGITAL
HARDWARE
NETWORK
RANDOM
USER

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Computer History

In the word search puzzle below are the names of persons and machines that are famous in computer history. Find as many as you can. Good luck!

W E R W L Z G U H A U X M W E M E M O L
T A E U J C K X J B A R D E E N S Z S F
Z M S H O C K L E Y M R D O A Q A M E X
H E D V A C J P A S C A L X B T G N G S
L B R A T T A I N H J R E D S A C F A H
T B U N I K I Z A R M R W W H E U D B C
P O U U W V O S D J J U C T I C D N B S
Y O Q N K U W R Q W X X L G O K V H A I
L L X I G M A I K E N T E U J E O K B Y
J E V V E U F I Y H J L I F M R C F I L
W E H A Q F M K E G C W B F T T H U L H
V V Q C Q J K R I V D Q N I X Y O Y E C
U N A Z S C H A P I U P I K K B L Y G U
S J G N H G T M H A S L Z W B C L R I A
V B X M N B K X M A B L M D J A E L L M
M V U A E N I A C P V A A E Z R R Z C J
D G J S E E G N C P A M C G O Q I L R C
H M F S H M C V R L T M K U R Q T M H E
C A A N G W A U I E T F S D S L H L E Q
Q J S O N P G K R C Q A L R D P P I K I

LIST OF WORDS

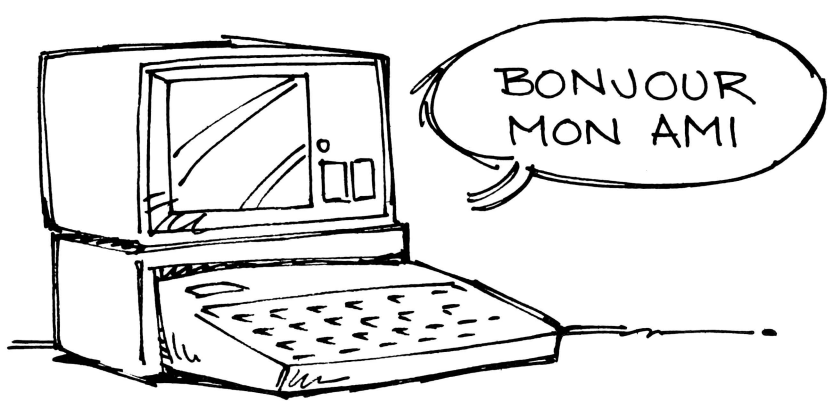
ABACUS
BABBAGE
HOLLERITH
AIKEN
MAUCHLY
SHOCKLEY
BRATTAIN
PASCAL
JACQUARD
BUSH
ENIAC
EDVAC
APPLE
EDSAC
LIEBNIZ
BOOLE
MARKI
ECKERT
UNIVAC
BARDEEN

Word Scrambles

Computer Languages

Unscramble each of the computer languages below. Write the correct answer on the line provided. If you know of any other languages not listed below, add them to the list.

1. LACASP _____ SNOBOL
2. OLOG _____ SMALLTALK
3. ILTOP _____ ALGOL
4. ALBYSMES _____ COBOL
5. RHFTO _____ FORTRAN
6. PAL _____ PILOT
7. LSPI _____ APL
8. CINAMEH _____ PASCAL
9. LGALO _____ BASIC
10. SICAB _____ ASSEMBLY
11. BOSNOL _____ ADA
12. ROFNRTA _____ MACHINE
13. AAD _____ FORTH
14. LOOCB _____ LISP
15. TKLLSAAML _____ LOGO



Hardware

Each of the scrambled words below is a hardware term. Unscramble as many as you can. You may want to cover up the list on the right to make the puzzle harder.

1. APET _____ KEYBOARD
2. RACTK ALLB _____ WAFER
3. AEPLDD _____ COMPUTER
4. GIHLT EPN _____ TAPE
5. LOTRPTE _____ TRACK BALL
6. URETPOCM _____ MONITOR
7. ARNEIFTEC _____ CHIP
8. KOSIYTJC _____ PADDLE
9. IKESTTDE _____ CARTRIDGE
10. TRIPRNE _____ PLOTTER
11. REFAW _____ DISKETTE
12. RMINEATL _____ MODEM
13. MDEOM _____ PRINTER
14. INMTOOR _____ DISK DRIVE
15. BAEDROYK _____ JOYSTICK
16. SOMUE _____ INTERFACE
17. SKID REVID _____ LIGHT PEN
18. HCPI _____ TERMINAL
19. RGAITREDC _____ CASSETTE
20. SCTETASE _____ MOUSE

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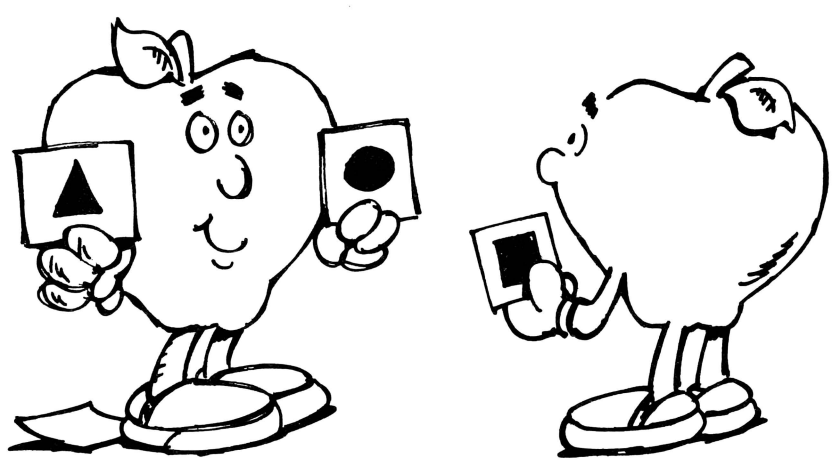
Word Matches

Commands and Statements

Match the words in the left hand column with the definitions on the right. Place the number of the correct answer on the line next to the word.

_____RETURN	1. Puts Apple into Applesoft Basic
_____END	2. Puts Apple into Integer Basic
_____RUN	3. Displays program in memory
_____DATA	4. Deletes program in memory
_____NEW	5. Executes program in memory
_____IF-THEN	6. Saves program in memory to disk or cassette
_____LIST	7. Causes the program to branch to the indicated line
_____GOSUB	8. Causes an unconditional branch
_____DIM	9. Causes a conditional branch
_____SAVE	10. Returns to main program from subroutine
_____GOTO	11. Assigns values from DATA statements to variables
_____FP	12. Reserves space in main memory
_____INT	13. Causes program to terminate
_____READ	14. A list of values assigned to variables through the use of READ
_____LET	15. Assigns a value to the specified variable



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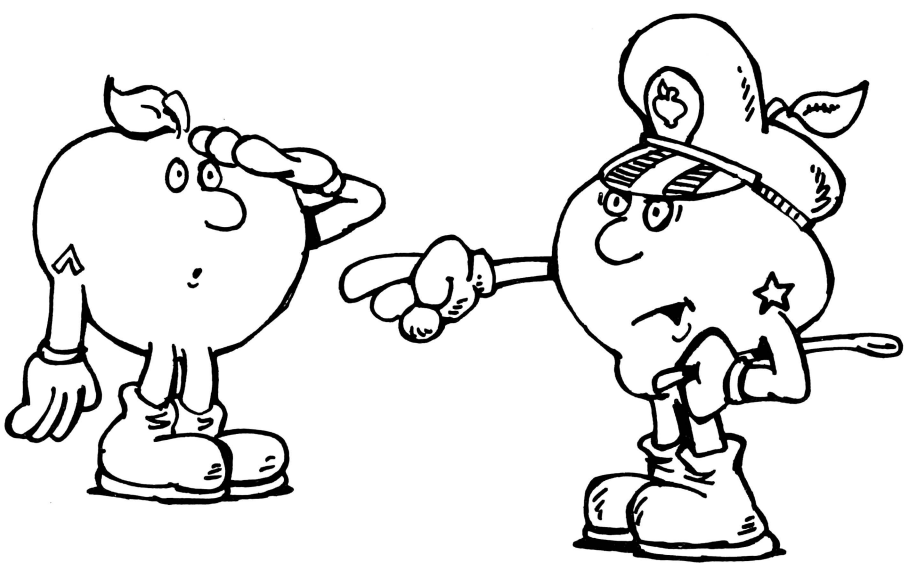
Match the words in the left hand column with the definitions on the right. Place the number of the correct answer on the line next to the word.

_____VTAB	1. Initiates and terminates a loop
_____REM	2. Permits remarks to be placed in a program
_____FOR-NEXT	3. Causes a program to halt execution
_____HOME	4. Displays a prompt and then accepts input data
_____COLOR	5. A statement to the computer to put something on the screen
_____FLASH	6. Provides a list of all files on a disk
_____PLOT	7. Initializes a disk by saving program in memory
_____INIT	8. Load a program from a disk
_____GR	9. Sets Low-Resolution graphics color
_____LOAD	10. Flashes the video display output
_____STOP	11. Puts display into Low-Resolution graphics mode
_____HTAB	12. Clears the display
_____CATALOG	13. Moves the cursor to a specified column
_____PRINT	14. Displays a point on Low-Res graphics display
_____INPUT	15. Positions cursor to a specific row



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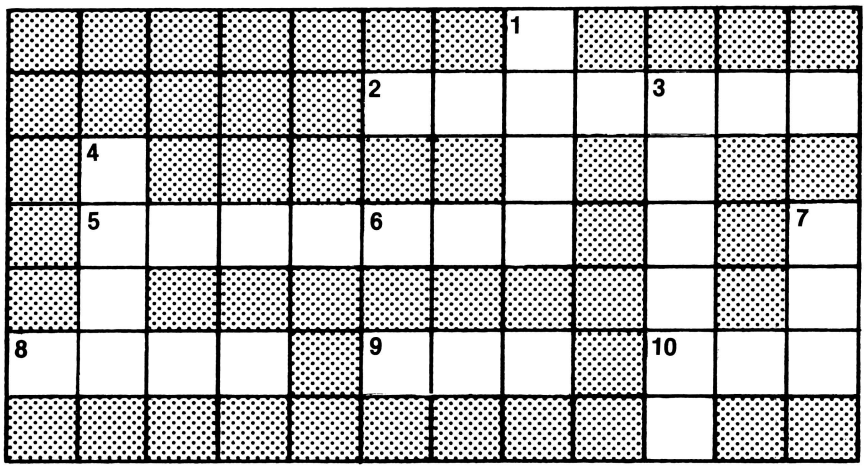
Crossword Puzzles

Programming Test



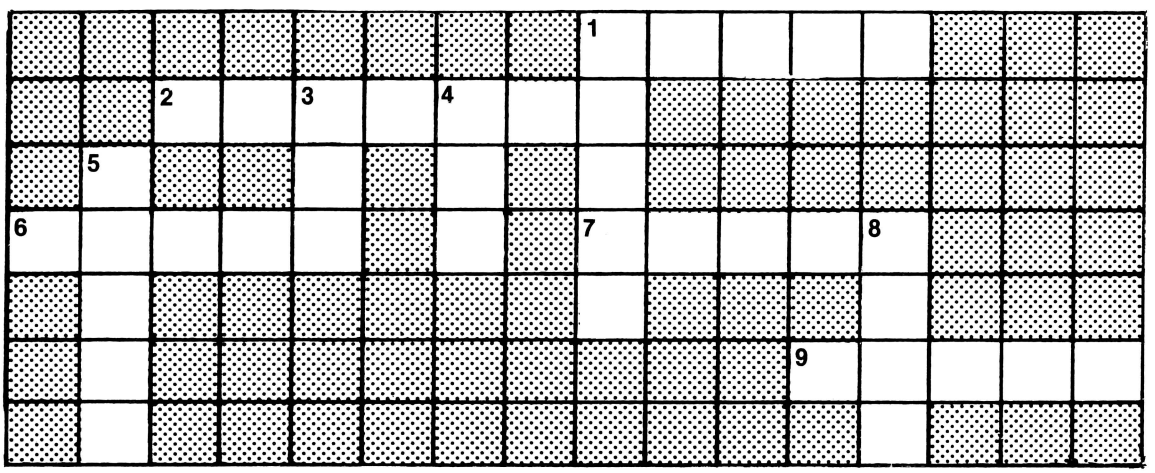
Across Clues

2. A set of instructions for the computer
5. Prints black letters on a white background
8. Positions cursor to specific row
9. Tells computer to erase program from memory
10. Nonexecutable statement in a program

Down Clues

1. This command clears the screen
3. Puts a command or line into memory
4. This command displays the program in memory
6. Executes the program in memory
7. Reserves space in main memory

Acronyms



Across Clues

1. Erasable and Programmable Read Only Memory
2. FORmula TRANslation
6. MOdulator-DEModulator
7. ALGOrithmic Language
9. American Standard Code for Information Interchange

Down Clues

1. Electronic Numerical Integrator And Calculator
3. Random Access Memory
4. Read Only Memory
5. COmmon Business Oriented Language
8. LISt Programming

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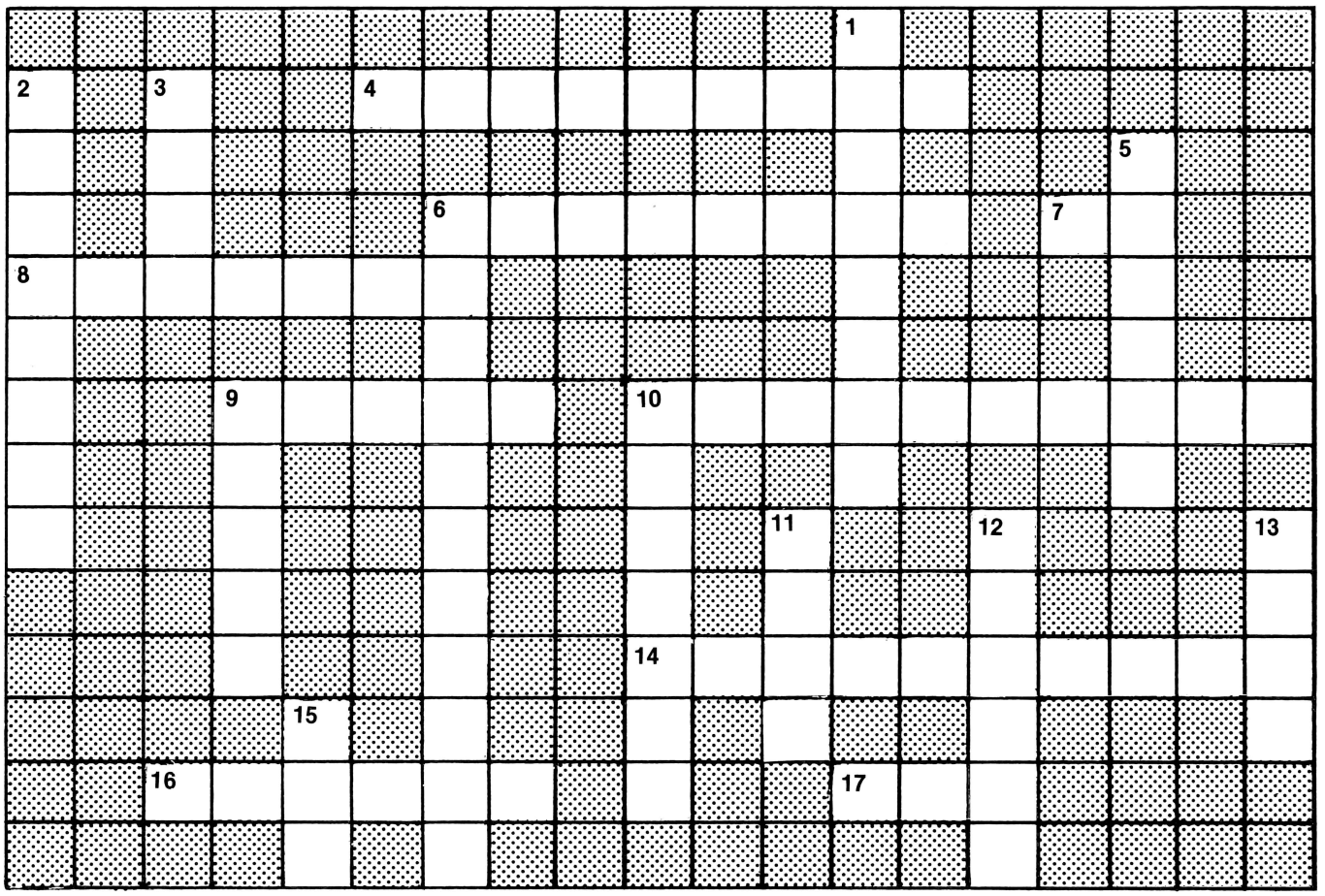
Computer Crossword



Across Clues

4. A diagram to show how a program works
6. Data that has been printed to paper
7. Abbreviation for Artificial Intelligence
8. Another word for memory
9. Acronym for Electronic Numerical Integrator And Calculator
10. An electronic device that performs mathematical operations
14. The use of machines to do work
16. An acronym for UNIVersal Automatic Computer
17. Abbreviation for Arithmetic and Logic Unit

Down Clues

1. Usually pictures or designs on the screen
2. A special word to gain access to certain data
3. A prefix that mean one thousand
5. In the decimal system, zero through nine
6. Another word for base sixteen
9. A mistake in a program
10. Another word for instruction
11. Information processed by the computer
12. A device made of beads strung on wires
13. A list of actions a computer can take
15. An acronym for BInary uniT

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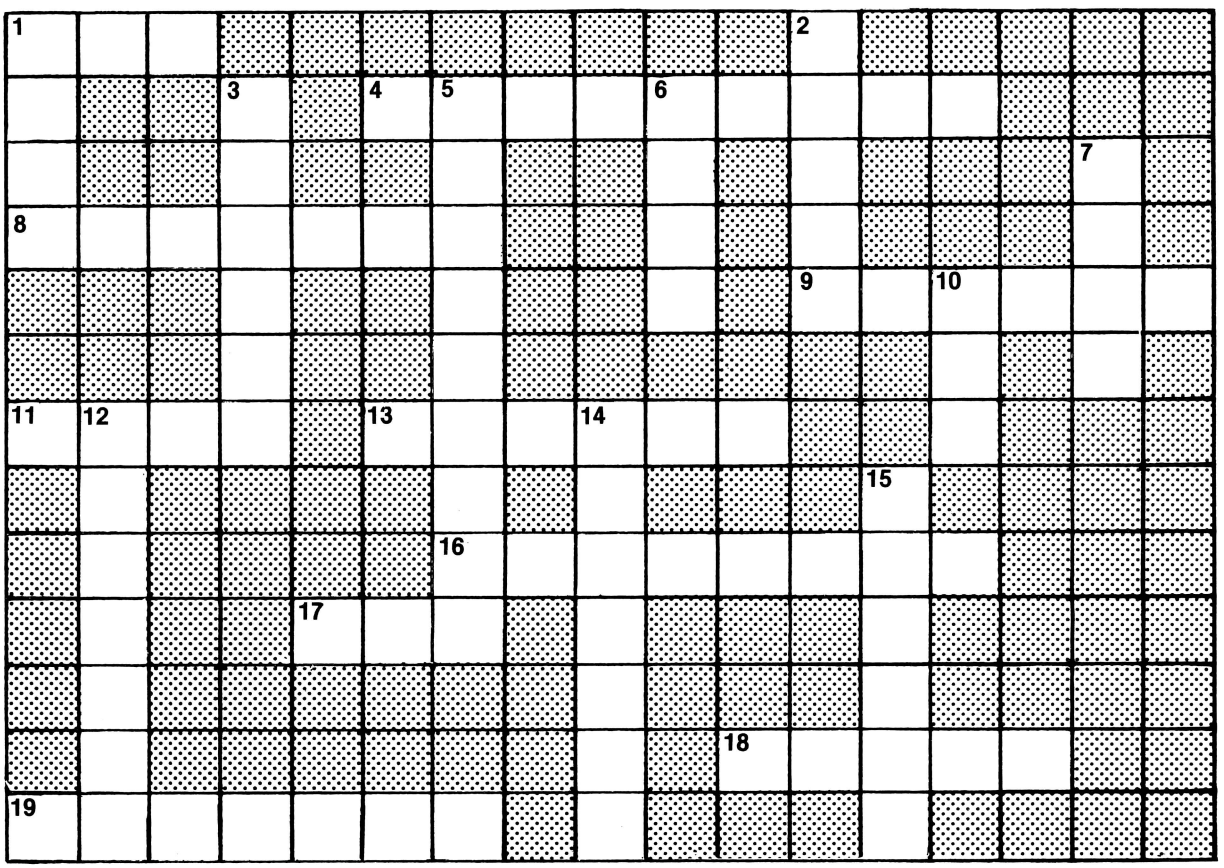
Computer Crossword II



Across Clues

1. An error in a computer program
4. The largest kind of computer
8. The process of changing or correcting a program
9. The blinking square on the screen
11. Numbers, letters, and other keyboard symbols
13. Base two
16. Computer machinery
17. Acronym for Read Only Memory
18. Information put into the computer
19. To demagnetize

Down Clues

1. Most commonly eight bits long
2. Acronym for Beginner's All-purpose Symbolic Instruction Code
3. Processed information coming out of the computer
5. A step-by-step procedure for solving a problem
6. Information stored by a computer
7. A set of instructions the computer repeats
10. Acronym for Random Access Memory
12. To carry out instructions
14. A word that is composed of the first letter or letters of other words
15. A symbol to the left of the cursor

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Answer Keys:

Page 35

Computer Languages

```
. C O B O L . . . . . .
. . . . . O . L I S P .
. P . . . G . . . . . .
. I . . . O . . . . . .
. L . . . . . . B . . .
F O R T R A N . . A D A
. T . . . . . . S . . .
. . P A S C A L . I . .
. . . L . . . . . C . .
. . . G . . . . . . . .
. . F O R T H . . . . .
. . . L . . . . . . . .
```

Page 36

Computer Words

```
. . . . V A R I A B L E . . . . . . . .
. . . . . . . . . . . . . . . . . . . U
. . . A . . A . . . . Q . . . . . . S .
P B . L . . . R . . . . W . . . . E . .
R U . G . . . . R . . . . E . . . R . . S
O F . O . . . . . A . S S E R D D A S O
M F N R . . . . R . Y . . . . T . . C F
P E E I . . . . A D . . F . . . Y . R T
T R T T . . . . N A . . . I C H I P O W
. . W H . D . . D T . . . . L . . . L A
. . O M . I . . O A . . T . . E . . L R
. . R . . G . . M . . R . . . . . . . E
T . K . . I . . . . O . . . . . . . . .
. E . . . T . . . B . X . Y R A N I B .
. . X . . A . . A . . . I . . . . . O .
. . . T . L . . . . . B . R . . . . O .
. A C R O N Y M . . . I . . T . . . T .
. . . . . . . . . . . T . . . A . . . .
. . . . R O R R E . . . . . . M . . . .
. . . . . . H A R D W A R E . . . . . .
```

Page 35

Hardware Terms

```
. . C . J . . R . . . .
. . H . . O E M O U S E
. . I . M T Y . . . R .
. . P . U O . S . E . E
. . . P . . N . T . . T
. . M . P . . I . I . T
M O . . . A I . T . C E
C O . . . R D . . O . K
. . D . P . . D . . R S
. . . E . . . . L . . I
. . . . M . . . . E . D
. . . K E Y B O A R D .
```

Page 37

Computer History

```
. . . . . . . . . . . . . . . . . . .
. . . . . . . . . . B A R D E E N . . .
. . S H O C K L E Y . . . . . . . E .
. E D V A C . P A S C A L . . . . . G .
. B R A T T A I N . . . E D S A C . A .
. B . . . . . . . . . . . . E . . B .
. O . U . . . . D . . . . . . C . . B .
. O . N . . . R . . . . L . . K . . A .
. L . I . . A I K E N . E . . E . . B Y
. E . V . U . I . . . . I . . R . . . L
. . . A Q . . K . . . . B . . T H . . H
. . . C . . . R . . . . N . . . O . . C
. . A . . . . A . . . . I . . . L . . U
. J . . . . . M . A . . Z . . . L . . A
. B . . . . . . . A B . . . . . E . . M
. . U . E N I A C P . A . . . . R . . .
. . . S . . . . . P . . C . . . I . . .
. . . . H . . . . L . . . U . . T . . .
. . . . . . . . . E . . . . S . H . . .
. . . . . . . . . . . . . . . . . . . .
```

Page 38

1. PASCAL
2. LOGO
3. PILOT
4. ASSEMBLY
5. FORTH
6. APL
7. LISP
8. MACHINE
9. ALGOL
10. BASIC
11. SNOBOL
12. FORTRAN
13. ADA
14. COBOL
15. SMALLTALK

Page 39

1. TAPE
2. TRACK BALL
3. PADDLE
4. LIGHT PEN
5. PLOTTER
6. COMPUTER
7. INTERFACE
8. JOYSTICK
9. DISKETTE
10. PRINTER
11. WAFER
12. TERMINAL
13. MODEM
14. MONITOR
15. KEYBOARD
16. MOUSE
17. DISK DRIVE
18. CHIP
19. CARTRIDGE
20. CASSETTE

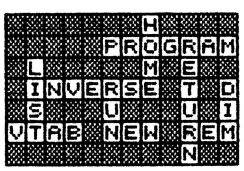
Page 40

RETURN	10
END	13
RUN	5
DATA	14
NEW	4
IF-THEN	9
LIST	3
GOSUB	7
DIM	12
SAVE	6
GOTO	8
FP	1
INT	2
READ	11
LET	15

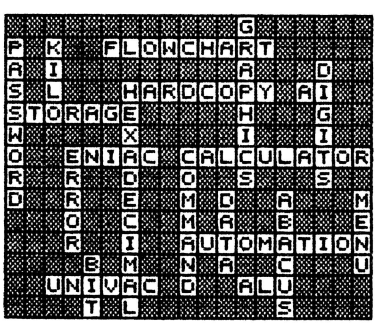
Page 41

VTAB	15
REM	2
FOR-NEXT	1
HOME	12
COLOR	9
FLASH	10
PLOT	14
INIT	7
GR	11
LOAD	8
STOP	3
HTAB	13
CATALOG	6
PRINT	5
INPUT	4

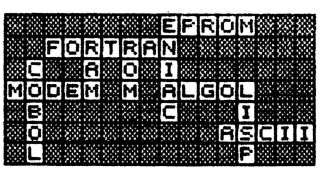
Page 42



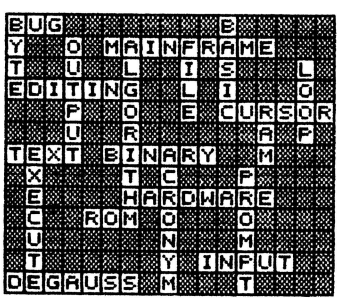
Page 43



Page 42



Page 44



Glossary

Boot—Starts up a computer by loading a program into memory

CATALOG—Provides a list of all files stored on a disk

COLOR—Sets the display color

DELETE—Erases a program from a disk

Disk—Stores programs

END—Causes the program to terminate

FLASH—Flashes the screen output

FOR...NEXT—Marks the beginning and end of a program loop

GET—Accepts a single character from the keyboard

GOSUB...RETURN—Transfers a program to the specified subroutine; then returns to the next statement after GOSUB

GOTO—Sends the program to the designated line number

HCOLOR—Sets the display color for plotting high-resolution graphics

HGR—Converts the display to 160 row of high-resolution graphics with four lines for text at the bottom

HOME—Clears the screen

HPLOT—Plots a point or line in high-resolution graphics

HTAB—Positions the cursor to a specified column

IF...THEN—Tests a conditional expression

INIT—Initializes a disk

INPUT—Reads information from the keyboard

INT—Yields the integer part of a numerical value

INVERSE—Causes text colors to be reversed

LET—Assigns a value to a variable

LIST—Displays all or part of a program in memory

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LOAD—Reads a program into memory from a disk

NEW—Clears the current program from memory

NORMAL—Cancels the effects of FLASH and INVERSE

PEEK—Gives a specified location in memory

PRINT—Writes a line of output to a display

READ. . . DATA—Reads values from DATA statements

REM—Includes remarks in the program

Return—Causes program line to be entered into memory

RND—Yields a random number

RUN—Executes a current program, or a portion of it

SAVE—Stores program on disk

SOUND—Uses combinations of PEEK(-16336) to create sounds

SPEED—Sets the rate at which text is displayed

STEP—Changes the amount by which a loop is counted

TAB—Positions the cursor to a specified position

TEXT—Changes screen display from graphics to text

VTAB—Positions the cursor to a specified row

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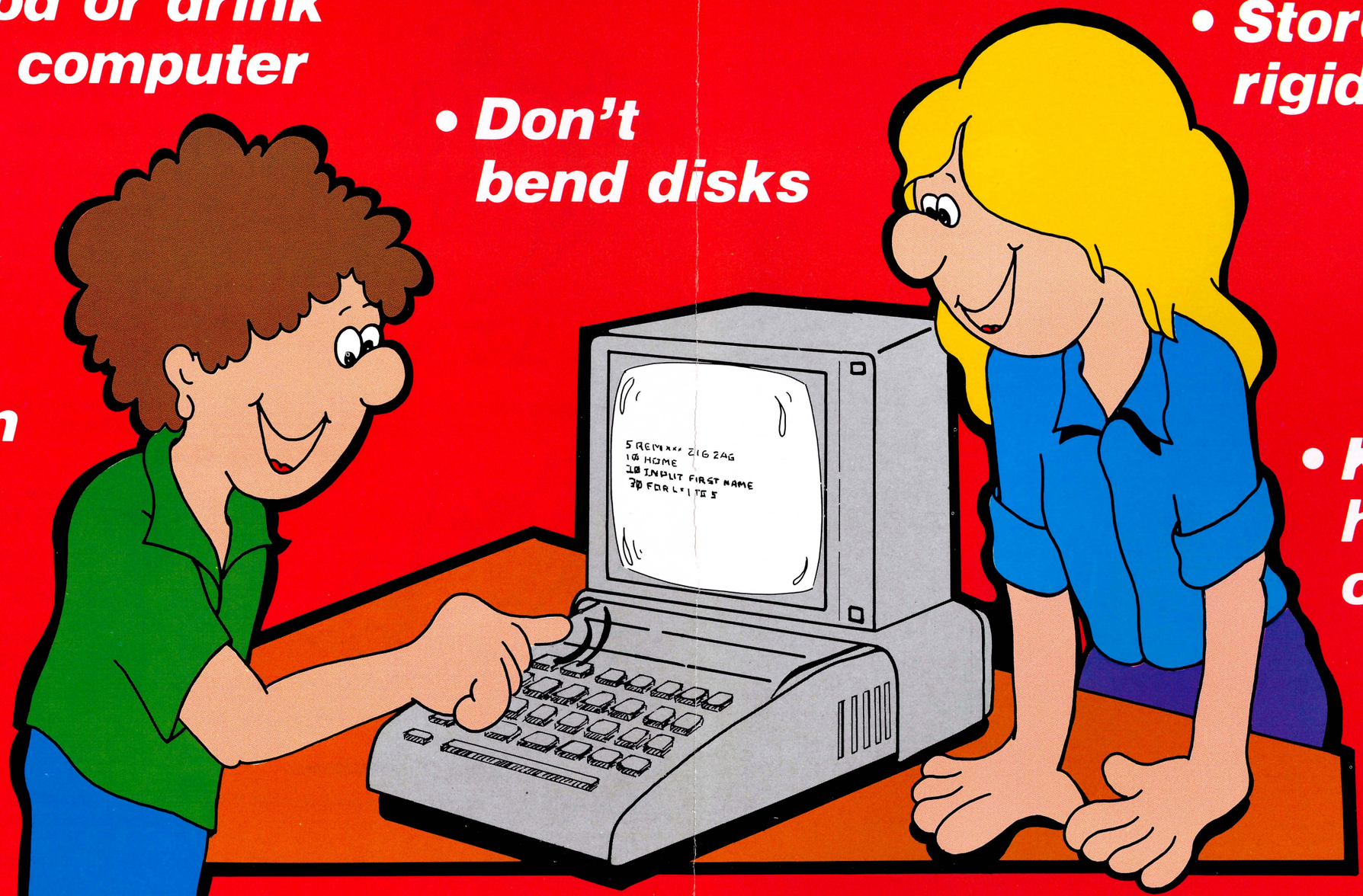
APPLE COMPUTER CARE

- No food or drink at the computer
- Don't bend disks
- Store disks in rigid cases



- Keep screen clean
- Keep your hardware covered
- Protect disks from dust and heat
- Handle disks with care
- Never remove disk when light is on

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